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ANDREW JACKSON SMITH.

By LESLIE J. PERRY.

IN the Union army there served twenty-four persons of the name of SMITH, as generals or brevet generals, and on the Confederate side there were six General SMITHS of the various grades. Of the twenty-four Union General SMITHS, six or eight were conspicuous officers; the others were not so well known, though nearly all the SMITHS performed their parts in the war with honor and more or less glory to their cause and themselves. Among the numerous military SMITHS who served the Union cause with fidelity, C. F. SMITH, BALDY SMITH, MORGAN L. SMITH, JOHN E. SMITH, THOMAS KILBY SMITH, W. SOOY SMITH and GILES A. SMITH were bright names in our military annals. But, in my judgment, the greatest of all the SMITHS was Major-General ANDREW JACKSON SMITH of the Western armies, who died at St. Louis recently. For long-continued, unceasing, uncomplaining and uniformly successful service A. J. SMITH, I think, held the record over all the other SMITHS, numerous and deserving and distinguished as some of them were. Few generals of other names, too, soared higher than he, for he was in the front rank of the most distinguished commanders of the war.

General SMITH in his day was not an unknown and unsung hero. Although he never achieved the distinction of commanding a department while the war progressed, his influence was great in determining many important events of the conflict in the Mississippi Valley. Yet when he died the other day, thirty-two years afterward, SMITH was waved off the stage with a perfunctory obituary notice exactly six lines in length, so vague as to make it difficult to differentiate him from the other distinguished SMITHS, in newspapers where President ROBERTS of the Pennsylvania Railroad, who died the same day, received nearly a column of panegyrics and a portrait. And the press this last week has been teeming with the exploits of the Confederate raider, JOE SHELBY, whose influence upon the war was almost nil.

ANDREW JACKSON SMITH was a Pennsylvanian. He was appointed from that State to West Point July 1, 1834, graduating from the Academy in 1838, No. 36 in a class of forty-five cadets; that is, within nine of the bottom. In SMITH'S class were MCDOWELL, CASEY, and R. S. GRANGER, who subsequently made names on the Union side during the Civil War, and BEAUREGARD, HARDEE and EDWARD JOHNSON of the Confederate service. Among his college mates in the preceding class were HOOKER, SEDGWICK, FRENCH, BRAGG, EARLY and PEMBERTON, while in the succeeding class were HALLECK, ISAAC I. STEVENS, LAWTON, and others who afterward became conspicuous on one side or the other.

Upon his graduation SMITH entered the old First Dragoons as a second lieutenant, and served against the Indians of the plains and in Oregon. He also had a share in the Mexican War. At the outbreak of the rebellion he was already a major in the First Dragoons. October 3, 1861, he was appointed colonel of the Second California Cavalry, but was soon detached, for in February, 1862, he turned up a chief of cavalry of the Department of the Missouri. This makes it probable that it was through HALLECK that SMITH was brought East and turned loose in the theatre of active military operations. He was commissioned a brigadier-general of volunteers May 17, 1862, while at St. Louis, and was thus fairly launched. All his earlier service was with the cavalry, and it appears that his superiors held him to have special qualifications for that arm; but it was as an infantry commander that he made his mark.

When, after Shiloh, HALLECK left St. Louis and went to the front to direct in person the combined armies operating against Corinth, SMITH was taken along as chief of cavalry. It was in the Corinth campaign that he first displayed those qualities of boldness

and activity which made him so successful as a leader, and afterward won him the regard and confidence of HALLECK, GRANT and SHERMAN. He commanded in a minor affair or two, which were cleverly managed. When the Confederates, BRAGG and KIRBY SMITH, invaded Kentucky in 1862, A. J. SMITH was sent back and assigned to a miscellaneous command in front of Cincinnati, which took some part in repelling the enemy from the Ohio river. It was one of the queer things in SMITH's career that he never appeared to be permanently attached anywhere, but was constantly tossed about from pillar to post, at the will and necessity of his chiefs, on important detached service. He wrote very few letters, and never remonstrated or grumbled, no matter what the nature of the duty assigned him, but went about its accomplishment in the most effective manner and without delay. Hence he became a prime favorite for the most difficult and dangerous undertakings, and was always available. When BANKS needed aid, GRANT said: "Send A. J. SMITH." When PRICE had to be chased out of Missouri, the order came: "Send up A. J. SMITH;" after FORREST had cleaned out nearly every Union officer sent after him, SMITH was put on his trail and defeated him; when HOOD sat down in front of Nashville, THOMAS did not attack until SMITH's veterans arrived from Missouri, and he finally wound up a series of remarkable marches and operations by taking part in the capture of Mobile. His selection for these various expeditions is strong proof of the high estimate placed upon his military capacity by his superiors.

After BRAGG had retreated out of Kentucky, SMITH was shifted down into West Tennessee again. He soon had organized a division of about 7,500 men, which composed part of the force used in the first great expedition down the Mississippi river against Vicksburg under General SHERMAN. He took a prominent part in the assault on Chickasaw Bluffs, where SHERMAN met with a serious repulse. Immediately afterward the Vicksburg expeditionary force was withdrawn, and under command of General MCCLERNAND, it attacked and, in conjunction with the navy, reduced Arkansas Post, near the mouth of the Arkansas river. The fort, all its munitions, and some 5,000 prisoners fell into the hands of MCCLERNAND. General SMITH led the attack with his division, and it was largely owing to his admirable dispositions that the fort was so cheaply won.

Soon after this event GRANT came down from Memphis and superseded MCCLERNAND, and then followed the great Vicksburg campaign, in which SMITH took part as a division commander. He was conspicuous in most of the movements and battles leading up

to the environment of Vicksburg. It was in these operations that SMITH first fell under GRANT'S personal observation, and he ever afterward had that commander's high regard. When PEMBERTON'S messenger, General BOWEN, came forth to ask terms for the surrender of the Confederate stronghold, he presented himself on General SMITH'S front on the Union lines. In the reports of Assistant Secretary of War CHARLES A. DANA, who accompanied the army during the Vicksburg campaign, it is recorded that SMITH took part with GRANT and MCPHERSON in the conferences with PEMBERTON and his advisers. After the surrender, SMITH accompanied SHERMAN'S second expedition against JACKSON and JOE JOHNSTON.

After the capture of Vicksburg and Port Hudson, things became duller along the great river, and on the 5th of August, 1863, SMITH was detached again to the command of Columbus, Ky., where he remained until January 21, 1864, after which, for a few weeks, he was engaged in some minor operations around Memphis.

When the BANKS expedition up the Red river to Shreveport and beyond, if possible, was determined upon by the government, General GRANT detached A. J. SMITH with parts of the Sixteenth and Seventeenth Corps, about 10,000 men, to reinforce BANKS. Upon arriving at the mouth of the Red river, SMITH learned that General BANKS would be delayed in making the final advance. He thereupon determined to do a little business upon his own account. He entered Red river on March 13th, and on the 14th captured the Confederate stronghold, Fort de Russy, which barred the way of the navy to Alexandria, where Banks was to concentrate his command. He also made a dash on Henderson's Mill, capturing 250 prisoners and four guns. The Confederates attacked and defeated BANKS at the Sabine Cross Roads on May 8th, before SMITH could join, and fell back upon the latter at Pleasant Hill, where the Confederates, under General DICK TAYLOR, attacked again on the 9th and were repulsed. In this last battle SMITH'S command was conspicuous and successful. He commanded the front and drove the enemy off the field, capturing 1,000 prisoners, five guns and six caissons. SMITH covered BANKS'S retreat down Red river. In this expedition, ill-fated considered as a whole, SMITH'S share was brilliant. He captured, all told, 1,757 prisoners and twenty-two pieces of artillery. In all its affairs he displayed quick perception and uncommon coolness and enterprise. He returned to Vicksburg with his command on the 23d of May, after an absence of seventy-four days.

Early in June the Confederate general, FORREST, had defeated disastrously General STURGIS at Guntown, Miss. In the beginning

of July, SMITH, with a force of 14,000 men, infantry and cavalry, was ordered to beat up FORREST. In those days the Union generals did not have to hunt long for FORREST; he was never in hiding when a fight was in sight. He attacked SMITH on the 14th with all his force; in fact, SMITH had out-maneuvered the Confederate by a flank movement, forcing him to give battle at a disadvantage. FORREST was outnumbered and badly worsted in the engagement and in the subsequent operations. His success against FORREST added largely to SMITH's reputation as a soldier. Later, during the early fall, the Confederate cavalryman, General JOSEPH WHEELER, got into East Tennessee, and upon SHERMAN's communications. GRANT telegraphed HALLECK: "If A. J. SMITH has reached Decatur, he had better be ordered by rail to Nashville to get on the track of WHEELER and drive him south." On September 12th SHERMAN telegraphed SMITH from Atlanta: "I have been trying for three months to get you and MOWER to me, but am headed off at every turn. HALLECK asks for you to clear out PRICE. Can't you make a quick job of it and then get to me?" These quotations show in what estimate SMITH was held by the military authorities.

Meanwhile SMITH had been promoted to major-general for his service in the Red River campaign, of date May 12, 1864. PRICE's raid into Missouri had become so threatening as to alarm the government, because the forces under General ROSECRANS, for the defense of that State, had been very much reduced. So it happened that SMITH, while at Cairo with his division, at last on his way to join SHERMAN, was diverted once again by an order from the War Department to go into Missouri. Hard marching, hard fare, and isolated skirmishing characterized this expedition. It was a most trying service, yet SMITH performed his part with uncomplaining zeal and fair success. He followed PRICE across Missouri, but at the final moment, through an error of judgment on the part of his superior in the direction of SMITH's march, the latter was deprived of a last opportunity to strike PRICE at Hickman's Mills, and the glory of the wind up was reserved for PLEASONTON at Mine Creek.

While PRICE was penetrating Missouri, HOOD had entered Tennessee, and was pressing the old hero, THOMAS, back on Nashville. Frantic appeals were sent for SMITH's troops to go to the assistance of THOMAS, which was ordered from Washington. SMITH's long march from the western part of the State, where he had followed PRICE, caused great delay in his reaching THOMAS. He embarked on steamers at St. Louis finally, and reached THOMAS at Nashville on the 1st and 2d of December, 1864, almost simultaneously with

HOOD's appearance before the city. HOOD had been severely defeated by General SCHOFIELD on November 30th, at Franklin. SMITH's share in the subsequent battle of Nashville, under THOMAS, on the 15th and 16th of December, was large and successful, and he was highly commended by THOMAS. HOOD was driven back across the Tennessee with enormous losses. SMITH took part in the pursuit, which was greatly retarded by bad weather, down to the river.

SMITH's extended operations had earned for his troops the soubriquet of "SMITH's Guerrillas." After the battle of Nashville, he wrote to Washington asking that his command, which had now grown to the dimensions of a corps, should receive a corps designation. He jocularly referred to their long journeyings and battles, and remarked that until they were assigned a corps number he should call them "the lost tribes of Israel." The President thereupon designated it the Sixteenth Army Corps. He was not permitted to remain long idle. CANBY's movement against Mobile, long delayed, was at last under way, and on the 6th of February, 1865, SMITH's veterans started on their last long journey by transports via the Tennessee, Ohio and Mississippi rivers to New Orleans, and thence by sea to Mobile. Under his command they participated in the capture of that city, the operations requiring about a month. Then they advanced up the Alabama river, SMITH occupying Montgomery and the whole outlying country, by making detachments to the more important points.

The war had now come to an end; the national authority was restored in all quarters. He remained in command of the District of Montgomery until the fall of 1865, when he was transferred to the District of Western Louisiana. He was mustered out of the volunteer service January 15, 1866, and made colonel of the Seventh Regular Cavalry July 28, 1866, but resigned May 6, 1869, and entered upon civil pursuits. Soon after General GRANT became President, in 1869, he appointed General SMITH to be postmaster of St. Louis, where he continued to reside until his death. Under a special law, passed in December, 1888, General SMITH was reäppointed into the army as colonel, January 22, 1889, and on the same day was placed on the retired list.

General SMITH was of small stature, with rather brusque, abrupt manners, sometimes verging on irascibility, yet was popular with his troops, and shunned none of the hardships to which they were subjected. The Union cause owed General ANDREW JACKSON SMITH a great debt of gratitude.

FIELD ORDERS, MESSAGES AND REPORTS.

By Captain EBEN SWIFT, Fifth Cavalry.

ORDERS.

THE giving of proper directions and orders to troops is one of the most important things to learn in the art of command. NAPOLEON himself does not always furnish a model in this respect. His defective orders to DESAIX might easily have led to his defeat at Marengo. At Wagram, a single word in the wrong place was sufficient to produce dangerous confusion in his army of 150,000 men. At Bautzen the Allies escaped destruction because his orders were not clear enough to suit the capacity of NEY. GROUCHY failed him at Waterloo because of vague and imperfect orders. In each case, however, he himself grasped the military situation clearly and well. More recently, at the battle of Inkerman in the Crimea, a corps was misdirected and kept out of the fight because of an order which could be interpreted in *two* ways. At Shiloh, General GRANT's orders were not direct, positive and clear enough to bring a division, which was six miles away, into a fight which lasted all day. Many a military career has been ruined because of badly constructed orders.

The increased size of modern armies adds immensely to the importance of this subject. The German staff, under the teaching of MOLTKE, has reduced it to a science.

A military order is the more or less strict expression of the will of a chief, conveyed to his subordinates. The higher the position of the commander, the more general in character will his orders be. At the beginning of operations, and from time to time thereafter, the plans and intentions of the supreme authority would be issued in the form of *Letters of Instructions*. They would regulate movements over a large area during a considerable time. In this way General GRANT directed a million men over an area half as large as

Europe, from his headquarters at City Point. His instructions were in the form of letters and telegrams to the various commanders. They were of the most general character and prescribed little else than the general objective of the hostile armies and concert of action in attacking them.

It seems appropriate that directions of the headquarters of an army marching on several roads, covering the dispositions for several days at a time, should be issued in the same way, although no uniform practice obtains. General SHERMAN'S orders, from the headquarters of the military division of the Mississippi in his marches from Chattanooga to Atlanta and beyond, were almost too general to be called orders, although designated as such. Of the same character were the circulars issued by General MEADE before the battle of Gettysburg.

As soon as it becomes necessary to prescribe matters of detail, orders are issued. They would, for instance, be issued to a command marching on a single road. It would now be necessary to regulate in detail the size of the different fractions of the command, the task of each, the sequence in which they take the road, and the hours of starting. It is to this kind of an order to which I now ask your attention, because it will contain all the essential points of any field order, and because it requires a precise phraseology.

Orders are issued either (1) in writing, or (2) verbally.

The *written* order should be invariably used for large commands. The *verbal* order may be given (*a*) directly, or (*b*) by orderly. It may be issued directly when the officers can be quickly assembled to hear it given, but even then the orders should be dictated and written down if of any length. For simple details or a single service the verbal order may even reduce itself to a word of command. A notable instance of a verbal order occurred at Spring Hill, before the battle of Franklin. General HOOD has claimed that the best move of his military career came to naught because General CHEATHAM disobeyed his positive verbal order to attack. CHEATHAM has asserted with equal earnestness, that no such order was given. I refer you to a study of the situation there to decide how nearly a Federal army came to disaster. The *verbal* order, delivered by orderly, should be avoided as much as possible in the field. It would be used only upon urgent necessity, and always with the danger of some such controversy as the above taking place. Such an order should not contain more than a single, well determined point, as "the division will march to the village of X." The bearer of the message should repeat it before riding off. Sometimes, for

obvious reasons, the messenger is also made acquainted with the contents of the written message.

Orders are general or special, for regimental and all larger commands; for small units or commands they are simply called orders. The commanders of the several fractions would use the terms detachment orders, advance guard orders, rear guard orders, depending on the character of the duty.

As to the general plan of the order, several practices obtain:

1. To prescribe a line of conduct for the subordinate, both in the details of execution of a particular order, and in the different emergencies which may arise.

2. To point out the object to be reached, leaving the means to the judgment of those who are charged with the execution.

The *first* plan, it must be confessed, was followed by NAPOLEON and WELLINGTON. NAPOLEON particularly delighted in minute and voluminous instructions. He would detail the exact duties of every important commander and would attempt to provide for every case. This was perhaps a necessary part of his system, for his marshals were not men of conspicuous ability, except as fighters. The best of them frequently failed him when removed from his personal direction, and many of his instructions were neglected and ignored. His practice of providing for everything himself worked to his disadvantage toward the close of his career when he was not able to work for twenty hours a day. This is shown particularly at several phases of the Waterloo campaign when his staff failed to assume the direction of events in his absence or when he was resting. His defeat at Leipsic was largely due to the failure of his staff to provide means for retreat—matters which they should have attended to without orders.

The plan of NAPOLEON cannot be recommended and would not succeed in less skillful hands than his own. What the ordinary mind foresees seldom comes to pass. Few indeed are able to look so far into the future as to provide for every emergency. It is impossible to tell where, in the wide range of military knowledge, it is expedient to begin, and where to stop, when once you begin to give details. Instances are known of elaborate plans of battle which were never carried out because a single unexpected event occurred.

An order of the *second* class is based on the assumption that the recipient is familiar with his duties, and that he has sufficient military ability to use the advantage of being on the ground. In newly formed armies this fortunate state of affairs cannot exist; and con-

sequently the generals have gone into the opposite extremes in regulating details. In our rebellion it was only toward the last when the orders began to be boiled down to a good shape and size. The order for the advance of the Union army before the first Bull Run reads curiously to-day. It warned the army that three things were not pardonable in any commander. 1st. To come upon a battery or breastwork without a knowledge of its position. 2d. To be surprised. 3d. To fall back. This order which directed a movement of over 35,000 men, prescribed that advance guards, videttes and flankers were to be used. Brigades were warned to sustain themselves as long as possible before asking help of others. The order gave directions as to the manner of attacking a battery, and told how camp-kettles and mess-pans were to be carried. Not one of these points deserved a place in a military order for the march of such a command.

In the French armies of the republic in 1871 this peculiarity is marked. Page after page of minute details were written, which the accounts of the battles show were not carried out. On the other hand eighteen lines of the German official account give the orders of MOLTKE when the German armies, marching on Paris in 1870, were turned to the north to follow MCMAHON. Yet in the latter case not a battalion crossed another in its march, or went hungry, or bivouacked in the open.

A precise form is given to the order. If it is of any length and includes the acts of several bodies of troops for a common end, it should be divided into paragraphs, numbered consecutively without headings. The most important matter should come first and passages dealing with a single subject are included in the same paragraph.

The most common form of a field order, as well as the most useful as an example, is the order of march of a body of troops acting alone when an enemy is near. Such an order would contain a suitable caption and ending, and the body of the order would be divided into about five numbered paragraphs, as follows:

I. Information of the enemy and general situation.
II. Your own plans.
III. Your disposition for carrying out your plans.
IV. The destination of the trains.
V. The position of the commander.

An order will give at its head the designation of the leader's command. In our service the central point from which orders are issued is designated as headquarters, but the word seems to be unnecessary.

The caption must also name the place of issue, the number, the date, and generally the hour and minute. The date may be abbreviated in the usual way, thus, 11-20-95, indicating the eleventh month and twentieth day, of the year 1895. In naming a night, mention both days, Night $\frac{19}{20}$, November. The hour and minute are written in railway fashion, thus, 9:15 A. M. The words noon and midnight should be written in full. At the end it must give the name of the commander by whose authority it is issued, and be authenticated by a staff officer if this is not done by the commander himself.

Under the order is briefly noted the manner of its issue, as:

"In writing to the commander of each camp."

"Dictated to the adjutants."

"Copy to commander-in-chief."

The *information of the enemy* was given by German commanders in some such form as this: "From reports received it seems probable that the enemy intends such a move," or "The enemy appears to be in such a position." This statement, to be of value, requires a complete system of reports, a free communication with all the fractions of a command, and an efficient service of information. From the fact that it was omitted from some of the most important orders of our last war we are led to the conclusion that scouting and reconnaissance was often defective, and also that the peculiar character of the theater of operations made it impossible to locate the enemy until he was actually encountered. Even in such a case it would seem that the ideas of the commander, however vague they might be, would deserve a place in the order.

The next paragraph contains an intimation of the *end in view.* It would give only so much of the general plan as would enable the subordinate to carry out the operations in hand. As an illustration of the necessity for these provisions I will refer you to the numerous cases where orders are based on incorrect notions of the position of the enemy, in which case the subordinate may be justified in disobeying the most positive order. One of the points of contention in the FITZ-JOHN PORTER case was that the orders of General POPE were based on an erroneous idea of the enemy, and the claim was made that the officer performed a great service in disobeying the order. At the battle of Wörth the orders of the Crown Prince, to break off the action, were disobeyed because the commanders on the field thought the fight had progressed too far to make such a thing advisable.

The manner in which the troops are distributed may be shown

in the third paragraph, where the tasks are assigned to the several fractions of the command. It is preferable, however, to enumerate the troops apart from the text, in the margin, in a column headed, "Distribution of Troops." When the sequence of march is put in the orders, they are named one after the other and the heading is supplemented by the words, "and order of march." Thus the order of march of the fractions of an advance guard of a brigade would not appear in the brigade order. That would appear in the advance guard order, and the brigade order would simply give the names of the troops assigned to the advance guard. The brigade order would, however, give the order of march of the main body, which would be under the direct command of the commander. The most important *dispositions of troops* are given first, because they will impress themselves more strongly upon the memory. These will be followed by matters of lesser importance, which may have only for their object to secure or support the principal undertaking. If a natural arrangement such as this does not suggest itself, then it will begin with the foremost troops, as the advanced cavalry, following with advance guard and main body. This portion of the order will designate an initial point and the time it is passed by the head of the column. The time of marching of the subdivisions of the column will be calculated from here.

In naming units from which a portion is to be excluded, the unit should be named and the word "less" appended (for instance, First Cavalry, less one squadron). If more than half the unit is detached, it is sufficient to name the troops concerned.

In anticipation of action, the light baggage, that is the portion which will be required by the troops, will be separated from the heavy baggage. After this the light baggage follows the particular unit to which it belongs without further orders. The heavy baggage must be kept where it will not interfere with the movements of the troops and where it will not be involved in any of the confusion of battle.

The last paragraph gives the position of the commander. In certain cases it would give an hour at which staff officers from the various portions of the command are ordered to report for orders.

In general terms the order must be clear, short, precise, complete.

Avoid every form of expression that can be misunderstood because "experience shows that such orders will infallibly *be* misunderstood." Such words as "before," "behind," "forward," "rear," "this side," "that side," should be used with great care or

not at all. In their place the compass bearing, with reference to known points, is preferable, as, "One mile south of the village of X." The terms "right" and "left" may apply to individuals or bodies of men or to designate the bank of a stream — in which case the observer is supposed to be facing down the stream; they should not ordinarily apply to the ground or to inanimate objects, such as villages or woods. It will frequently be necessary to give the phonetic as well as the correct spelling of proper names. When several names are alike in a neighborhood, they must be located by reference to other points. Thus, in the Atlanta campaign there were two places designated as Howell's Mills, one on Peach Tree Creek and the other on Nancy's Creek, about two miles apart. A misunderstanding as to these points caused a wide gap in General SHERMAN'S lines closing on Atlanta, which might have caused serious results.

A road will be designated by two or more places, following the line of march, as the "Leavenworth-Lowemont-Atchison Pike." It often happens that the names are different on different maps, and that places not on one map are found on another. When other than the official map is used, the fact must be stated. VON DER GOLTZ tells about hunting all night to find a name that was not on any of his maps at all.

The order in the field is issued under peculiar conditions of emergency and inconvenience. It is received sometimes in the midst of great excitement and danger; perhaps it must be read in a rain storm where no shelter is near, or at night by a poor light. Every care must be taken to make it brief, in plain phrase and short sentences.

It must be so positive in its terms that the responsibility can be placed with ease. The line must be clearly drawn between an order which is to be strictly construed and one where discretion is allowed. For instance, "March your troop to X," "March your troop to X at a gallop," "March your troop to X as quickly as possible" are a few forms of a very simple order, which might be obeyed in many ways. Imagine yourself in the place of the recipient of your order and ask yourself if you could obey without asking a question.

It must be complete in form. In the hurry and confusion of writing it will be easy to leave an organization not provided for, a road uncovered, a name in the wrong place. These blunders become fatal when they involve large commands.

The writing must be so distinct as to be legible even by a bad light. This is one of the most important requisites. The German

officers are directed to cultivate a fair round hand. Indifference to this plain and simple piece of education seriously impairs an officer's efficiency in many cases. The most serious criticism of the work of this kind that I have seen is that it is often so carelessly written as to be unintelligible. If an officer does this under the clear skies and favorable influences of a peace maneuver, what may be expected in the contrary case?

The list of things which an order should not contain is a long one. It is particularly necessary to avoid conjectures, expectations, reasons or apologies for measures taken.

The order for an advance should make no provision for a possible retreat. Such an event should be carefully considered, but the necessary directions should be given to the next senior officer in strict confidence.

All orders, not directly concerned with the movement in hand, should be issued separately. Such orders would be termed by the Germans "Orders of the Day." The practice of mixing up orders for every conceivable detail of service with the order for the movement of troops was a common thing at one time in our late war. Some of the orders of CHANZY in 1871, read like the army column of a newspaper.

Care should be taken that no order is given for things which would ordinarily be done without special orders. The orders of the Confederate commander for the attack on GRANT'S army at Pittsburg Landing are a notable instance of the tendency of high commanders to reduce their subordinates to a state of tutelage. This order, the credit for which is claimed for General BEAUREGARD, required some hours for preparation, and now occupies about three pages of the Rebellion Records. It reminds one major-general, who, by the way, was himself the author of a system of tactics, that he must "make a proper distribution of the artillery along the line of battle, remembering that the rifle guns are of long range, and should be placed in commanding positions in the rear of his infantry, to fire mainly upon reserves and the second line of the enemy, but occasionally will be directed on his batteries and heads of columns." Another major-general, a veteran of twenty-five years service, was told how to form his regiment in line, but was permitted to place his artillery to suit himself. The order provided for a number of detachments, for camp guards, for repairs of bridges and roads, and closed with an appeal to the patriotism of the troops, and enjoined them to obey orders, not to waste ammunition, to fire slowly, at a mark, and to do much work with the bayonet.

MESSAGES, DISPATCHES, REPORTS.

A commander's knowledge of the situation is gained and his decisions are formed, largely by the messages he receives from the front. These messages are written on a message blank of size to fit, whence once folded, an envelope furnished for the purpose. An inspection of the blank and envelope renders a description unnecessary, except to explain that the heading "Sending Detachment" should be filled in with the name of the body of troops with which the writer is on duty, as picket of First Company, Twentieth Regiment of Infantry, or Officers' Patrol, Sixth Cavalry.

The address is written briefly as, "To General SHERMAN." The signature should be the writer's surname and rank.

For staff purposes copying apparatus is provided. It is usual not to completely close the envelope in order that commanders along the line of march may read its contents. The orderly retains the envelope.

I use the word "message" in preference to "report," which is generally employed in this country, so as to distinguish between brief communications which pass from one part to another of an army on service, and the more elaborate history of the operations prepared under cover, at greater leisure, giving a complete narrative of the campaign or battle. Hence it is more correct to say that a patrol sends a message than that it renders a report. A dispatch is a brief narrative of events, more detailed than a message and less so than a report. It is usually sent immediately after any important event, to higher authority.

The message, in its brevity, clearness and freedom from official forms, resembles an order or a telegram. It may even contain an order when sent to a subordinate. The message may therefore take the place of reports from the front and of orders from the rear.

The utmost care should be observed in its preparation, remembering that *facts* are wanted and that they must be clearly separated from what is heard or surmised.

Our rebellion records are full of stories of overwhelming forces of the enemy, of uniform valor and victory on the side of the writer and of indiscriminate praise of subordinates. This tendency to magnify the size of the enemy, to call a defeat a victory, and to award praise where it is not justly due, is only natural, but should be strongly repressed. The information thus obtained is valueless to a commander, and every willfully false report should be treated as a crime.

NOTES. I.

Following is an example of an order for the march of a detached brigade of all arms:

The command consists of:

1 squadron of cavalry,
1 battery,
1 brigade of infantry,
½ company of engineers,
1 bearer company,
½ ambulance company,

FIRST BRIGADE, FIRST DIVISION, FIRST ARMY CORPS.
FORT LEAVENWORTH, KANS.,
11–21–95. 8:30 P. M.

FIELD ORDERS }
No. 1. }

Distribution of Troops 11-21

Advance Cavalry:

1 sq. 6 Cav. less 2 plat.

Advance Guard (*Col. A.*)

½ platoon of Cav.
I Inf. Regt. less 1 bat.
½ Company Engineers.
Detachment of Bearer Co.

Main Body and Order of March. (at 1,000 yds.)

Staff of 1 Brigade.
½ Platoon of Cav.
III Battalion 1 Inf.
Battery A, 1 Art.
2 Inf. Regt.
3 Inf. Regt. less 2 Cos.
Det. of Bearer Co.
½ Amb. Co.

Rear Guard (at 500 yds.)

1 platoon of Cav.
2 companies 3 Inf.

I. The enemy is reported at Winchester, advancing on Leavenworth.

II. The brigade will seize the line of the Big Stranger Creek to-morrow.

III. *a.* The cavalry will find the enemy and screen the march. The bridges will be held until the arrival of the infantry, when the cavalry will go to the flanks.

b. At 6 A. M. the brigade (except as above) will assemble near Frenchman's and will march by the road Frenchman's 8 Mile House.

c. The rear guard will send a detachment to guard the train.

IV. The heavy baggage will be parked at West End parade until 12 o'clock noon, when it will follow the troops.

V. I will be with the main body until 8 A. M. and with the advance guard after that hour.

B.
Brigadier General.

Dictated to Staff.
Copy by orderly to Squadron, Battery and Regimental Commanders.

Following are samples of the message blank and envelope, reduced half size.

SENDING DETACHMENT	LOCATION.	DAY.	MO.	HRS. a. m. or p. m.	MIN.
	RECEIVED,				

To

To	
DEPARTURE RATE OF SPEED	ARRIVAL
This envelope will be returned to bearer.	

CAVALRY RAIDS.

By Lieutenant JAMES H. REEVES, Fourth Cavalry.

WHILE not willing to admit that the day for the use of cavalry on the battlefield has completely passed away, it is at once admitted that its use in this respect has much diminished. But while its use on the actual field of battle has much diminished, its use in detached action has increased to such an extent that, "it implies no disparagement of the value of cavalry on the battlefield to say that the most important service of mounted troops is in that class of duties known as 'detached action.'" Detached action is defined to embrace: "All scouting, reconnoitering and *raiding* duty, whether by a great force of cavalry acting as a screen in front of the army, by a *raiding column*, a mere patrol, or even a single scout."

The cavalry may be said to be in the performance of these special functions continuously during the existence of war; while with infantry and artillery marches and maneuvers are the rule, and fighting, their *raison d'etre*, is the exception.

Nor are these special functions to be underrated in summing up the various causes leading to a successful close of the war, for on these "the safety of the army and the soundness of the plans of the commanding general mainly depend." An able author says of Napoleon: "His military genius was paralyzed by lack of information; and to his deficiency in light cavalry, more than to any other cause, is to be attributed his downfall." While the cavalry will be incessantly engaged in detached action, raids, the special form of detached action which we are to consider in this paper, will be undertaken only when the occasion for their special use arises. And this occasion must be such that the advantages accruing will outweigh the grave disadvantages, such as inadequate objective, demoralization, waste of men and horses, absence at time most needed,

(and others which appear in the description of raids) which are connected with every raid.

Raids are defined (Cavalry Drill Regulations, paragraph 968) to be, "Isolated, independent cavalry operations, conducted with secrecy, by rapid marches, usually avoiding general engagements."

Prince KRAFT says: "What is the proper meaning of this new word 'Raid?' As far as I know, it has not yet been defined with sufficient precision. I understand it, judging by the various undertakings which have been so called, to mean an incursion made by a large mass of cavalry * * * during which this force is not only made independent for a time of the regular command of the army, but is also unable to count upon any daily support from the latter, and is thus absolutely detached and left to itself, while its communications with its own troops are necessarily often cut by the enemy; being thus situated, it proceeds, obeying the good pleasure of its leaders, to execute the duty which it may have been intended to carry out."

Far be it from me to criticise so great an authority as Prince KRAFT, but this definition does not seem to quite cover the American idea of a "raid;" and here it may be said, they really originated during our Civil War.

In order to better understand what is meant by raids, let us first notice the objects for which they are or may be undertaken, and then follow out in detail one or two leaders while on a raid, which will present the subject more clearly and comprehensively, than we can by mere definition.

These objects are given in "Organization and Tactics," as follows:

"1. To threaten or destroy the communications of the enemy, thus compelling him to weaken himself for their protection, or delay his advance.

"2. To check an invading army, by operations against its communications and the capture of its immediate base of supplies.

"3. To make a diversion in favor of the main army by drawing off troops in pursuit of the raiding force.

"4. To gain information.

"5. To cause alarm in the enemy's country, and thus destroy confidence in the enemy's commanding general, or create a sentiment unfavorable to the prosecuting of the war.

"6. To interfere with the mobilization and concentration of the enemy's forces at the beginning of a campaign.

"7. To devastate the enemy's country, and destroy his resources.

"8. To effect the release of prisoners."

To go back for a moment and consider the subject historically, we find examples of raids or adventurous expeditions successfully executed as far back as the "Seven Years' War." As two examples we may notice HADDICK's capture of Berlin, October 17, 1757, with a force of 4,000 men and four cannon; he reached and attacked Berlin, which was defended by a force equal to his own, and capable of defeating it, had not this force been so imposed upon through rumors that had been scattered abroad as well as the bold front shown by HADDICK. He accepted a ransom of £27,000 sterling, and after a rest of twelve hours made a successful retreat, skillfully evading all attempts to cut him off. But the most important operation of the kind during that war was the attack and capture of the Prussian convoy marching from Trappau to Olmutz, for it had a decisive effect upon the result of the campaign, causing the raising of the siege of Olmutz and the retreat of FREDERICK into Bohemia.

The convoy was under command of Colonel MOSEL, and consisted of 4,000 wagons and an escort of eight battalions, 3,000 recruits or convalescents in four battalions, and 1,100 cavalry.

Marshal DAUN sent General LOUDON to attack from the west and ZISKOWITZ to attack from the east.

Frederick sent General ZIETHEN with twenty squadrons and three battalions to MOSEL's assistance. The first attack on the convoy was unsuccessful. A second attack made while the convoy was passing through the defile of Domstoedtel was successful and resulted in the destruction of the entire convoy with the exception of 250 wagons. Other instances might be cited from this war, also the operations of the Cossack leaders, CONSTANTINE, TCHERNIKEFF, DENIZOFF and others in the famous campaigns of 1813–14 are very interesting.

"But in strategic results, in skillful execution and far-reaching effects, the American raids surpassed all previous operations of the kind, and have as yet been unequaled." So then it will more nearly fulfill our object to consider some of these raids, the details of composition, equipment, execution, characteristics of leaders, etc., etc. Among the most brilliant and successful of American leaders may be mentioned MORGAN, FORREST, STUART, SHERIDAN, WILSON and GRIERSON.

MORGAN is credited with being the author of raids. This is probably true in that it was an original idea with him, for it is extremely unlikely that he ever heard of TCHERNIKEFF, TETTENBORN and other partisan leaders, though his raids were almost upon the same principles except that *he used no infantry* and did use guns.

His historian, General DUKE, says of him: "While other cavalry officers were adhering to the traditions of former wars, and the system of the schools, however inapplicable to the demands of their day and the nature of the struggle, he originated and perfected not only a system of tactics, a method of fighting and handling men in the presence of the enemy, but also a strategy as effective as it was novel. Totally ignorant of the art of war as learned from the books and in the academies, an imitator in nothing, self-taught in all that he knew and did, his success is not more marked than his genius."

Probably this statement is somewhat enthusiastic and colored by personal admiration, but it is true that MORGAN possessed the courage, the ready resource, the knack of adapting the means to the end necessary for every successful cavalry leader, as the following description of his command and operations will show. It may be remarked here that it is more to our purpose to consider rather the general features applicable to all his raids than those of a particular raid, for the expedients used of necessity varied with the demands of each case.

His force never consisted of more than 4,000 men. At first it was armed in a very nondescript manner, but finally uniformly with a rifle. Each man carried a brace of revolvers but no saber. Two small guns were generally with his command. His style of fighting was peculiar at that time and was original with MORGAN. To again quote his historian: "If the reader will only imagine a regiment drawn up in single rank, the flank companies skirmishing, sometimes on horseback and then thrown out as skirmishers on foot, and so deployed as to cover the whole front of the regiment, the rest of the men dismounted (one out of each set of fours and the corporals remaining to hold the horses), and deployed as circumstances required, and the command indicated to the front of, on either flank, or to the rear of the line of horses, the files two yards apart, and then imagine this line moved forward at a double quick or oftener a half run, he will have an idea of MORGAN'S style of fighting."

The long flexible line curving forward at each extremity was hard to break, giving as it did a converging fire, admitting of facility of moving to and quick concentration at any point.

A small body of mounted men was usually kept in reserve for the purpose of acting on the flanks, covering a retreat or pushing a victory. His men were all good riders, but due to his methods of recruiting and the rapidity of his movements, there was neither

time nor opportunity for training his men or horses sufficiently for effective mounted work.

His command had to be a self-sustaining one, for he rarely fought with the army, and many times could count on his nearest support being as far distant as 100 miles and over.

His great fertility of resources is shown by his skillful marches, by his scattering his forces at times and threatening several points at once, by the extreme mobility of his column, allowing of rapid concentration, by his use of scouts, and in many other ways.

A special instance that might be mentioned occurred at Midway, Ky., (when on his first raid), where he made extraordinary use of the telegraph office (having with him an expert operator) intercepting various orders and sending out others, changing the direction of march of troops moving to cut him off. A summary of his first raid is: He started with 900 men, lost ninety and returned with 1,200, was absent twenty-four days, traveled 1,000 miles, captured seventeen towns, destroyed all the government supplies and arms in them, dispersed 1,500 home guards, and paroled 1,200 regulars.

MORGAN made his greatest raid (one year later, or in July, 1863), which was an unsuccessful one. Disobeying his orders, he had made a much more extended raid than was intended, got entirely beyond the help of assistance, and was caught by a sudden rise of the rivers, rendering all fords impassable. His command was dispersed and he was captured. He was confined in the State Penitentiary of Ohio, "where he proved himself a good man all round, an undeniable cavalry leader, and as full of resource as ever by tunneling through the prison wall and escaping with five others."

He was killed in September, 1864, while on a raid.

MORGAN may be cited as the foremost exponent in abandoning the saber, arming his men with a long-range rifle and fighting them dismounted.

But, great as was MORGAN'S ability and self-sustaining powers, he was rivaled in these by FORREST, whose natural soldierly capacity was so great that it may be termed military genius. Like MORGAN, he was not an educated soldier, so proceeded in an original (at least to himself) way to work out his success.

His method of fighting was very similar to MORGAN'S, though he made greater use of a mounted reserve and did not discard the saber, though placing only a small reliance in it.

So varied were the services performed by FORREST'S men that they fully proved General KILPATRICK'S trite saying that, "Cavalry can fight anywhere except at sea," and on two occasions they prac-

tically performed "the exception that proves the rule." One was his first action, where his regiment engaged a gunboat carrying nine guns and protected by iron plates. This boat had been sent to Canton, on the Cumberland river, to destroy a quantity of Confederate stores. FORREST made a night march of thirty-two miles and reached the point ahead of the boat. Dismounting his men, he placed them under cover of logs and trees, and when the boat came up he engaged it successfully, causing it to retire.

The second instance was in October, 1864. FORREST had decided to make an effort to impede the navigation and use of the Tennessee river. By the same means as employed in his first action he captured two steamers and a gunboat. Repairing the gunboat and one steamer, he manned them by detachments chosen from his command, and the Confederate flag was soon floating from both vessels, "the horsemen on shore making the air ring with cheer after cheer for their comrades who had taken service on the novel element." His fleet lasted only a day or two, when the boats being overmatched were run ashore and burnt, "the troopers scampering off to their horses, fonder of their saddles than ever."

Another exploit was cutting his way out from Fort Donelson rather than surrender; another, "the massacre of Fort Pillow" (a blot on his character as a soldier); another, the capture of the city of Memphis—but these are enough to show the great range of the man's abilities.

In raids, FORREST was equally effective, as is shown by his raids on the L. & M. R. R. in 1862; his raid in conjunction with VAN DORN on GRANT'S communications and the depot at Holly Springs, which was perhaps the most successful and profitable raid ever undertaken; his raids on SHERMAN'S communications in 1864—and others that could be mentioned.

In repelling or pursuing a raiding force he was always equal to the occasion, as is shown by his fight with General SMITH at Okolona, Miss., the succeeding pursuit and fight. Also, by his pursuit and capture of STREIGHT'S command, which surrendered 1,700 to 500. In this, "for three days his men marched an average of forty one miles daily, fighting for hours several times daily and nightly, and after that, in the last forty-eight hours of the expedition, he led his men, worried and jaded as they were, a distance of full ninety miles. At the surrender, the Confederates, formed up in line to receive it, were so overcome with sleep that they were nearly all nodding, unable to keep their eyes open."

In "Organization and Tactics," his character is summed up as

follows: "In the whole range of military history it would be hard to find the name of another cavalry leader who, with the same numbers caused his enemies so much trouble as N. B. FORREST."

But great as were the operations and successes of MORGAN and FORREST, they were most too much of the freebooter style, and it is to other American cavalrymen and their commands that we must look for the model we are seeking.

Foremost among these is General J. E. B. STUART, who, "ignoring the cavalry traditions of the Old World, and seeking the most ready means to meet the end in view, he originated a new method of using mounted troops, and may be said to be the father of the cavalry tactics of the present day."

His force was composed of true dragoons, and while more effective in battle than the forces of MORGAN and FORREST, also rivaled them in the extent, magnitude and success of the raids undertaken. His ability for screening and reconnoitering duty has probably never been equaled.

The force under him in June, 1861, numbered only 21 officers and 313 men present for duty, yet such was his activity that a front of more than fifty miles was efficiently watched and every important movement of the enemy was duly reported, causing General JOHNSTON to say: "How can I eat, sleep, or rest in peace without you upon the outpost?"

General JOHNSTON's recommendation of STUART was: "He is a rare man, wonderfully endowed by nature with qualities necessary for an officer of light cavalry. Calm, firm, acute, active and enterprising, I know of no one more competent than he to estimate the occurrences before him at their true value."

The risks STUART took and the dangers from which he rescued his command can readily be imagined when we recall the fact that on three occasions he made the entire circuit of the Union army.

The first was "The Chickahominy Raid", General LEE's order for which provides as follows: "You are desired to make a scout movement to the rear of the enemy, with a view of gaining intelligence of his operations, communications, etc., and driving in his foraging parties and securing such grain, cattle, etc., for ourselves as you can make arrangements to have driven in. * * * You will return as soon as your expedition is accomplished; and you must bear constantly in mind, while endeavoring to execute the general purpose of your mission, not to hazard unnecessarily your command, or to attempt what your judgment may not approve. * * * One of the chief objects of your expedition is to gain intelligence for the guidance of future movements."

He moved on this raid on the 12th of June, 1862, with a force of 1,200 cavalry and two guns of his horse artillery. His command was in lightest marching order, carrying only three days' rations and sixty rounds of ammunition per man. He marched around the right of MCLELLAN'S army, determining its position, and when he reached Tunstall's Station on the 13th, he had MCCLELLAN'S army squarely between himself and Richmond, and was within five or six miles of its camps.

He had now determined the position of the right wing, thereby accomplishing the main object of his expedition. The great depot of the army at the White House was less than four miles distant, and could he have spared the time to attack would have been a prize rich beyond description. But in view of General LEE'S instructions, "Be content to accomplish all the good you can, without feeling it necessary to obtain all that might be desired," he forebore making the attempt.

In the light of after events it seems that STUART had up to this time intended returning by the same road, but now considering that too dangerous, due to the troops moving to cut off his retreat, he pushed boldly forward, and his command did not know that he had almost on the spur of the moment changed his plans.

He continued his march, making the entire circuit of the army, and safely reaching Richmond with most valuable information.

The waste of horses was replaced by those captured; a few prisoners were taken and a considerable quantity of stores destroyed, but the information gained was what in this case stamped his raid with success.

His raid to the rear of POPE'S army, in August, 1862, was a brilliant affair, in which he almost captured General POPE himself, and did succeed in capturing a number of officers on his staff, together with a large sum of money, the despatch book and other papers of General POPE'S office, his personal baggage and horses and other property. His greatest raid, "The Chambersburg Raid," was made with 1,800 men and four guns. The great marching powers and tactical versatility of his command were clearly shown in this raid. After reaching Chambersburg he marched on to Leesburg, a distance of ninety miles, in less than forty hours. In the affair a Poolesville the same men first charged as cavalry and drove back the enemy's horsemen, then, quickly dismounting, checked the advancing infantry long enough to enable the artillery and the rest of the command to come up. "The success of this raid depended, as in most raids, on General STUART'S ability to

deceive the enemy as to the intended direction of his march, prevent all information reaching him by cutting the telegraph everywhere, and, at the same time, receiving accurate information as to the position of the enemy's various detachments; * * * his energy and impetuosity were unrivaled, while his presence of mind and promptitude of resource saved his command on many critical occasions."

These instances are sufficient to illustrate the general character of raids, and to complete and round out our definition given above, but we cannot close the historical references without briefly citing the great results accomplished in some other raids.

GRIERSON's raid, in 1863, was made with about 1,700 men. He went clear across the State of Mississippi, from north to south, devastating the country, cutting the railways and telegraph lines, burning rolling stock, bridges, stores, etc. General GRANT says: "The raid was of great importance, as it attracted the attention of the enemy from the main movement against Vicksburg."

The greatest raid of the war, so far as preparation for, numbers engaged, area of country covered, and destruction caused, was made by General WILSON. His force consisted of nearly 13,000 men and eighteen guns, and was organized with the greatest care.

It was, in fact, almost an invading army, bent upon laying waste a great section of the enemy's country, rather than a raiding force, conducted with secrecy and avoiding general engagements. This force was so equipped as to be able to keep the field for sixty days without being dependent on the headquarters' magazines, etc

Each man carried five days' provisions, twenty-four pounds of grain, 100 cartridges, and one set of spare shoes. A train of 250 wagons and pack-mules also accompanied the command. He was engaged in this raid for twenty-eight days, marched 525 miles, captured 6,820 prisoners and 280 guns, destroyed 99,000 stands of small arms, 1,000,000 rounds of artillery ammunition, 235,000 bales of cotton, twenty locomotives, 250 cars, and all mills, factories, bridges, etc., along his march.

In ability for handling great masses of cavalry, maneuvering and fighting them effectively, General SHERIDAN stands forth preëminently. He made his raid against Richmond in 1864 with 10,000 men, a small ammunition train, two ambulances per division, and a few pack-mules, three days' rations and a small quantity of forage carried on the saddles. The command was armed with saber, attached to the saddle, magazine rifle and revolver. This large command marched on one road, for, due to the nature of the country, it

was hardly ever possible to bring them together when wanted if they were marching on parallel roads.

SHERIDAN'S brilliant work in marching ahead, taking position in front of LEE'S retreating army and holding it until the main army came up and caused its surrender, is hardly in the nature of a raid, but may be merely mentioned here.

Having considered briefly examples of raids made with commands ranging from 900 to 13,000 men, it remains to be seen what lessons we can draw from them for our guidance in the future should the opportunity for raiding occur; for conclusions and deductions based upon past experiences are safer and a more sure guide than those arrived at from a mere theoretical consideration of the subject.

First, as to when and where raids are practicable.

We find that any time after the declaration of war, probably the earlier the better, as giving an idea of the enemy's place of concentration and his intentions, whether for offensive or defensive action.

As to place, we find they are not so practicable in an enemy's territory. Most of those which were successful during our Civil War were on friendly territory, though of course there are exceptions to this statement as to all other rules. Noticeably, STUART'S "Chambersburg Raid." The raids in Southern territory, while in an enemy's country, were greatly aided by the peculiar circumstances of the slave population acting as guides and spies. In the Franco-German War, raids made by the German cavalry were actually projected and even begun but they turned out impracticable due to the resistance offered by quickly raised levies, which should not have rendered them futile, as we will notice further on. According to Prince KRAFT, French raids on the German lines of communications were practicable. In the last days, when the German armies were in front of Paris, much could have been done in cutting the German lines of communications, destroying villages, cutting off supplies, etc., etc. But he seems to have overlooked the fact that at this time the French had no efficient cavalry. Their best opportunities seem to us to have been in the days around Metz, when 13,000 cavalry, instead of being shut up in Metz and the horses and men starved, should have been out raiding on the German communications. They could not have fared worse than they did and in all probability would have done much better; certainly, so far as foraging was concerned. Prince KRAFT in defending the German cavalry for not breaking up the mobilization of the force being

collected by GAMBETTA, points out that they could not have been of much use where a force of 200,000 men would have been encountered, forgetting that such a force could be much annoyed and forced to separate to obtain subsistence if their source of supplies were cut off for a day or two, which is just what we expect from a cavalry raid.

That Russia contemplates using cavalry early in the war on foreign soil, and Germany also (but to a less extent), we judge from the peace stations of their cavalry. Russia having forty-eight squadrons posted along the 450 miles of German frontier, while Germany has twenty squadrons along about the same frontier. From the practice the Russians are given in making long and rapid marches with large bodies of cavalry, we are inclined to believe that she thinks raids on foreign soil offer sufficient recompense to be attempted.

Next in order for consideration comes the composition of our raiding force. Before considering this, however, let us notice briefly the characteristics of the leader necessary for this force, for we do not think there is any other military operation where the success depends more absolutely (if as much so) on the leader, as in a raid.

"Secrecy, celerity and resolution," are given as his motto. He should possess the rarest combination of talent. He should have the great prudence necessary for one charged with responsibility, at the same time possessing extraordinary rashness and bravery, combining the greatest calmness with the greatest impetuosity. He must have unbounded fertility of resource, shaking himself free from the trammels of routine and "red tape," adapting his measures intelligently to suit the varying conditions of each particular case.

In the examples we have considered, we find the forces ranging from 900 to 13,000 men. The latter size would seem to more nearly fit Prince KRAFT's definition about "masses of cavalry." But we are inclined to think the ideal raiding force lies nearer the 2,000 mark, due reference being had to integral units. This seems to more nearly meet all the various requirements and demands made upon a raiding force, being small enough for the most rapid movements and easy subsistence, and at the same time possessing sufficient power to brush aside any minor resistance.

The two main factors governing in deciding on the size of the raiding force are, the object to be accomplished and the amount of opposition to be expected, while a third controlling influence would be the character of country raided, rendering foraging and a supply of fresh horses an easy matter. The entire force should be mounted,

no infantry being added, for it would so much impede the rapidity of the march as to counterbalance the greater resisting powers it would give the command.

Two guns per thousand men seem to meet the requirements given above and is the amount of artillery recommended by the best authorities, based upon actual experience. A special organization and service of scouts is necessary to prevent operating in the dark. But this brings us to the consideration of the next step.

Careful preparation is undoubtedly necessary for success. Horses and men must be in the most perfect condition possible, and already trained and hardened by service for the excessive work they are undertaking.

The raid must be carefully planned beforehand and the object to be attained must be such as to warrant the risk incurred.

A secondary object should be provided in case the main one fails of accomplishment, so that the raid will not appear to have been made uselessly.

Pack-mules should furnish all the transportation required, the command (including the horses) counting upon living on the country. Explosives and pioneer tools should be carried in the pack train.

The scouts and guides, on whom the safety of the command and the attainment of the object depend, can not be too carefully selected. General SHERIDAN had in his employ some sixty scouts and spies. These scouts must be brave, intelligent, and have a natural aptitude for the work. They should, as far as possible, be inhabitants of the country through which the raid is to be made, and should in all cases be men actuated by the most patriotic motives.

The conduct of the raid as to marches, manner of disposing the command, the work of the scouts, the overcoming of special obstacles that may arise, would vary so far in each particular case that no instructions can be laid down. The command must be kept well in hand and plundering and pillaging can not be tolerated. The conduct of the raid is so inseparable from the personality of the leader that each one must conduct a raid for himself, by himself, trusting only to himself.

Taking the policy of the United States to be firmly established as one of peace and non-interference in foreign affairs, our military force has come to be considered in the nature of an internal police, used to back up the general government in the execution of the laws, and we regard an invasion of a foreign country by us as some-

thing impossible of occurrence. If such be the case, are we not all the more liable to invasion should an occasion arise for which arbitration does not find a ready remedy?

Let us consider that such a case has arisen, and what are the conditions that confront us? The general confusion, the utter lack of preparation, the hurried and feverish attempts at forming an army that were made in 1861 would be as nothing compared to what would exist were war declared against us and an invading army landed on our shores. While an army is being created, we can not say mobilized and concentrated (except of the militia), something must be done. The little regular army would be expanded to double or treble its present size and thrown forward. In the meantime the enemy has made a landing, established a depot, and, having selected an objective in the interior, pushes forward. As they proceed inland fresh supplies are collected and secondary bases are formed, but their line of communications still reaches back to the coast, and every day grows longer and thereby weaker. Now, a raiding force becomes necessary to check this progress by operating against this line of communications, while the rest of the army delays his progress in front by occupying defensive positions and destroying the bridges and roads by which he seeks to advance. If they can succeed in breaking it completely and cause the enemy to fall back, we have accomplished what is wanted—time.

As soon as war is declared our little force of ten regiments of cavalry of 600 men each is mobilized, and we find a force (at least on paper) of 12,000 men.

But of this force only the original part of 6,000 men (600 per regiment) are sufficiently trained in mounted and dismounted action, in reconnoitering, in rapid and incessant marching, to undertake the dangerous duty of raiding upon the communications of a modern enemy. Calling this then two brigades of three regiments each, we attach to each brigade a battery of horse artillery, select from among the available officers commanders competent for raiding duty (not judged by rank alone), and turn this force loose "to harass and weaken the enemy by drawing off in pursuit his cavalry or other troops, or, by causing him to guard a great number of points; to threaten, interrupt, and destroy his communications; to destroy his depots and source of supplies, etc.;" and if necessary to lay waste the immediate country he is occupying, for he must be stopped at all hazards. But in the meantime the enemy has taken another or other places on the coast, and has two or more lines of communica-

tions running to the rear. This offers a greater number of opportunities for raiding, but makes the task of checking the enemy's advance more difficult. Or, take the case where England is our antagonist, or an ally of our antagonist, and Canada becomes the territory upon which the enemy would be based, and from which he would launch all offensive operations. Raids must now be attempted, not against the communications alone, but first against the railways and canal systems of Canada. Fortunately for us some of these are so situated as to offer a good objective for a raiding force, promising results commensurate with the risks incurred. The Welland Canal is one, the destruction of which would (at the present time) insure the safety of the upper lakes. The Canadian Pacific Railroad, the great trans-continental line, would be most effectively destroyed at many places, thus completely separating the eastern and western seacoasts. The New Brunswick and Intercolonial Railroads would form other objectives, and should be kept continually broken by raiding parties.

"The nearness of these roads to the Maine frontier renders them peculiarly open to the attacks of raiding forces; but, on the other hand, the nature of the country makes the operation unusually difficult for cavalry—the only force with which raiding is possible. It may be confidently asserted, however, that cavalry which can operate in Arizona and Colorado would be able to surmount the natural difficulties of Maine and New Brunswick."

As for Mexico, we may consider an invasion from that territory as a base improbable, either for Mexico herself or with the assistance of allies, due to the lack of roads and the general topographical character of the northern part of the country.

Considering it, then, as settled, that in case of war much use will be made of raids, it remains to be asked if we are prepared to at once undertake these, our first offensive operations.

The organization of our regiments and brigades, where we group two or three regiments into a brigade, seems to be perfectly suited to our purposes. We also find our command all that we could desire as far as arms and, generally speaking, equipments go. In the matter of training for mounted and dismounted action, we find it able to use all the various kinds of mounted and dismounted action and to successfully combine the two when necessary.

We, therefore, do not possess that fear of, nor do we think we are likely to be seriously checked by, any bodies of home guards or quickly raised levies of peasants.

Were we not able to overcome such resistance, quickly brushing

it out of our way, we would not be worthy of the name of cavalry. So, then, we can not agree with VON DER GOLTZ when he says: "The thorough organization of the defensive power of civilized nations is also a prevention of raids. Even when the armies have already marched away squadrons of horse can, in thickly populated districts, with a little preparation, be successfully repulsed by levies."

"It is only the daring, enterprising spirit of the American horsemen that we can take as a model; the manner of carrying it out must upon European soil be totally different."

Such may be true of "European soil" and *European cavalry*, but we expect our cavalry not only to show the daring, enterprising spirit he refers to, but also to work out their raids much after the manner it has been in this country, with some additions in the way of aiding the celerity and thoroughness of the work done.

The principal of these is the use of explosives for the destruction of all masonry and truss bridges, canal locks, railroads, tunnels, reservoirs, telegraph lines, etc., etc.

At present, we find our force is unprepared in this important particular.

This, then, demands attention, "for the result of a raid in the vicinity of an active enemy, in so far at least as demolitions are concerned, would be more than problematical without a supply of high explosives and an accurate knowledge of how and where to use them."

We therefore form one "pioneer detachment" for each squadron, consisting of one officer, two non-commissioned officers, and eight privates.

They are thoroughly instructed in the use of the explosive granted us by the Ordnance Department, preferring guncotton to all others. This detachment is also drilled in the manner of making "faults" and "cutting in" on a telegraph line. Two pack-mules are assigned each "detachment." Each mule is equipped with a special pack-saddle and carries a supply of the explosive, including detonators, a Laflin & Rand Exploder, No. 3, some cutting tools, axes, saws, etc., and other necessary articles that experience would indicate. Each man of this detachment is provided with a kit to replace carbine and saber, this kit to contain a pocket relay with insulators for "cutting in," a file, wire nippers, cutters, a few detonators, a set of climbers, etc., etc.

We find our men pretty well instructed in the matter of reconnoitering and scouting duties generally.

The officers are able to read a map, and most of them to do rough road and position sketching, but our non-commissioned officers and men, if given a map of the country they were operating in, could not make intelligent use of it. This hampers us very much, for patrols unaccompanied by an officer, and couriers can only be directed verbally as to what route to follow and must depend on their memory and asking questions from persons met on the road.

As to subsisting upon the country by foraging and impressing fresh horses to replace those worn out, no practice is deemed necessary.

But our force is organized for a raid, and by the time we make the discovery that we have no explosive and that our men are unable to use it if we had it, also that a map is of no value to our non-commissioned officers, orders are received to move out.

These, then, seem to us to be the two main disadvantages our cavalry would have to operate under, and they are grave enough to seriously impair its value for raiding duty. But fortunately they can be corrected in a comparatively short time, and should not some attention be paid to these by "the powers that be," for after the opening of hostilities it will be too late.

We are not unmindful of the fact that, due to the greater extension of railways and telegraphs, the better understanding of "the service of security and information," and the greater powers conferred upon local defense by the long-range rifle and the intrenching tool, raids are growing to be more difficult of execution than in the past.

But when we remember that the concentration of such enormous masses of men as we see brought together in these days is one of the very features of modern war which will put a new weapon in the hands of enterprising cavalry; that these enormous armies are practically dependent upon railways as lines of communications; that railways, while the most serviceable, are the weakest of all lines of communications; and, that the whole soul of raiding consists in the destruction of railway and telegraphic communications, we do not think we err in predicting for our cavalry successes more glorious than those of the past which gained for the American cavalryman world renowned honors.

EMERGENCY CASES WITH THE HORSE.

By Captain C. B. HOPPIN, Second Cavalry.

MY intention, in the preparation of this paper, has been to note the diseases and injuries to which cavalry horses are most liable and to indicate such treatment as will be necessary to complete a cure, or at least prolong the life of the patient until competent veterinary assistance can be obtained.

The diseases most frequently met with are those involving the respiratory organs, including the air passages of the head, throat and lungs; and those in which the stomach and intestines are affected.

Fortunately for the horse owner trouble with the kidneys and bladder is extremely rare in the horse.

Among the diseases first mentioned, the one most frequently encountered is that which is known under the various names of strangles, distemper, colt-ill, catarrhal fever, etc.

This disease is found to exist in nearly every horse sent out for cavalry use from the great horse markets of the country, the stables of which, either through lack of ventilation, cleanliness or other causes serve to cause or develop the disease, thereby rendering these depots distributing points for the disease, as well as for remounts.

The disease may be recognized by fever, loss of appetite, or rather inability to eat, because of a sore throat, thirst, with failure to satisfy the same because of pain in swallowing. In a day or two the glands of the throat and those between the jaws will become swollen and sensitive to the touch. The nose runs, and a cough develops about the same time, the nature of the cough depending on the parts affected.

This disease is of an eruptive nature and therefore runs a regular course, and will probably not appear a second time in the same

animal. No medicine will probably be required, but careful and intelligent nursing is wanted to prevent serious complications.

The throat should be warmly bandaged with flannels, and if the swellings do not point in a day or two they should be poulticed, and when pus has finally formed and the swellings pointed they should be lanced, care being taken to prevent injury to the great blood vessels in the vicinity.

The horse in all cases of disease of the respiratory organs must be allowed plenty of fresh, pure air, the body carefully blanketed and the legs warmly bandaged. Steaming with hay in a bucket of hot water will often afford great relief in catarrhal troubles, and should be tried.

Give the animal anything he will eat, but grass is the best food for him. Apples, carrots, scalded oats, corn, barley or bran, will often be taken. The bowels must be kept open if possible with laxative food, but failing in this, small doses of oil must be given, no severe purgatives being allowed in diseases of this nature.

PNEUMONIA OR LUNG FEVER.

Pneumonia or lung fever is also quite common, caused, as it may be by exposure, overwork when not in condition, or as a result of a common cold not properly treated. Pneumonia is ordinarily ushered in by a chill of varying severity, followed by a fever which within a few hours will raise the temperature to 103 degrees or higher. Respiration will be considerably increased. Pulse eighty or more per minute (the normal pulse is about forty per minute, respiration about fourteen per minute, temperature about 100), accompanied by a dry cough. The countenance is haggard, the mouth of a purplish hue and hot and sticky to the touch. He stands with front legs wide apart, elbows turned out and will not lie down until relieved or about to die. The legs and feet are icy cold, this being one of the most distinctive symptoms. The head is held low and if loose toward the freshest air.

The first thing to do is to try to restore the circulation, by friction and stimulating liniments applied to the legs and over the chest. If successful in this the case is probably won, but if the legs chill off again, repeat the rubbing and give three drams carbonate of ammonia, two ounces sweet spirits of nitre and one ounce alcohol, in a pint of water, repeating in five hours until relief is gained.

In case the drugs are not available and alcoholic stimulants are, give half a pint of whisky, brandy, or a quart of beer every hour.

Relief is often obtained by applying a blanket wrung out in hot water and folded about two feet wide, and placed over the back; around the body just back of the elbows, cover with a dry blanket and strap on; renew the wet blanket every half hour, for four or five hours. Great care must be taken in drying the body after this treatment, and alcohol or some light stimulating liniment should be rubbed into the hair to prevent taking cold. In pneumonia, except when complicated with congestion of the lungs, it will usually be safe to proceed as indicated, obtaining the services of a competent veterinarian, and proper medicines as soon as practicable, but when complicated with congestion, something must be done, and *at once*. Rub the legs and body thoroughly and cover carefully, using ammonia liniment to stimulate the action of the skin, and thus draw the blood from the overcharged lungs. Give any of the following stimulants: Whisky, brandy or alcohol, half a pint in a pint of water every hour. Beer, a quart every hour. One ounce tincture of arnica or one tablespoonful acqua ammonia in a pint of water every hour, until relief is obtained. In case there is no medicine vigorous rubbing for an hour or more, by as many men as can work, may effect a cure.

Congestion may be distinguished from pneumonia by the suddenness of the attack, from the history of the case, and by the alarming symptoms of suffocation, viz: very rapid breathing, with great effort, shown by distended nostrils and heaving flanks, pulse nearly 100 per minute. A loud murmur will be heard in the chest often accompanied by a fine crackling sound.

This is an extremely dangerous disease, and is usually brought on by hard work when suffering from a cold or when not in proper condition.

THUMPS.

This is a spasmodic contraction of the diaphram. It is produced by the same causes as congestion of the lungs, and yields to the same treatment, viz: stimulants and rubbing.

GLANDERS AND FARCY.

Glanders and farcy while not frequently met with, still, from the fact that it is highly contagious and incurable, no time should be lost in its recognition, if indeed, such recognition is possible to the amateur.

Any animal which bleeds easily from the nose without previous severe exercise, which runs from the nose, especially from the left

nostril, which develops pustules on the lips or muzzle, the inside of the hind legs, or has irregular cords under the skin, sensitive to the touch, should be isolated at once, and if he develops swelling of the glands between the jaws, any of which adhere to the bone and becomes insensitive to the touch, or if he shows ulcers on the mucous membrane of the nose, kill him at once, and find out by post-mortem examination whether he has glanders or not. Any of these symptoms are sufficient to render the disease probable, and it is better to lose one horse that did not have glanders, than to expose a whole troop or more to possible contagion. If affected with glanders, V shaped tubercles will probably be found in the lungs.

DISEASES OF THE DIGESTIVE ORGANS.

Spasmodic or cramp colic usually commences suddenly and with intense pain; spasms occur at constantly decreasing intervals; during these intervals the pulse and respiration are nearly normal. During the spasms the animal evinces extreme pain, throws himself, stamps, paws, kicks, rolls and sweats profusely, and makes frequent attempts to pass water.

Give any of the following and repeat in an hour if necessary: One ounce chloral hydrate in a pint of water; two ounces sweet spirits nitre and two ounces laudanum in a pint of water; half ounce spirits ammonia in a pint of water; two ounces ether and two ounces laudanum in half pint linseed oil; brandy and whisky, half pint in one pint water; half teaspoonful pepper in oil or water, or pepper tea, *ad lib;* ginger, one tablespoonful in milk or water; Jamaica ginger, one tablespoonful in same; beer or ale, one quart. Rub the belly with mustard and water, pepper and water, or any stimulating liniment; inject soapsuds or salt and water.

Flatulent colic is readily recognized by the bloated appearance of the animal.

Alkalies generally neutralize the gas, among the best being two to four ounces soda bi-carb., two to four ounces bi-carb. potassa (saleratus) in water; half ounce chloride of lime in water; one tablespoonful ammonia in water; charcoal, soap and water, or lime water, in quantity.

INFLAMMATION OF THE KIDNEYS.

This disease may be caused by a cold, and horses that have been ridden and brought in warm are more liable to it than any others. The disease is rare and is only mentioned that I may emphasize the fact that any trouble with the kidneys is extremely rare.

When the trouble does occur it may be recognized by the almost constant endeavor to pass water. The penis hangs from the sheath and a drop of urine hangs at its extremity. The back is stiff and sore and the animal straddles with his hind legs if forced to walk, the loins are arched and flanks drawn up.

Apply a blanket wrung out in hot water to the loins; change every thirty minutes. If relief is not speedily gained, apply a light mustard plaster over the loins for a few minutes and then replace the hot blanket. Hot salt or sand in a bag may be used instead of the hot water. Linseed tea and slippery elm water are very soothing in their effects. The bowels should be opened thoroughly by the following drench: One pint castor oil and three drams aloes.

DISEASES OF THE FEET.

The most common of all foot diseases is laminitis, or founder. Its causes are many, viz: Long rides over hard roads, exhaustion, quick changes of temperature, as those caused by drinking cold water while heated, driving through a deep ford while hot, washing the legs in cold water while heated and feeding grain while heated or exhausted.

The disease consists of an inflammation of the sensitive laminae of the feet. In the acute form this is an exceedingly painful disease, and the chronic cases are liable to acute development at any time.

There will be little trouble in detecting this complaint. The hoofs affected are always hot. The horse can hardly be made to move owing to the increased pain which such movement causes. Where the front feet are affected the hind feet are brought well forward and kept there, the weight borne by the affected feet being mostly thrown upon the heels. The pulse is much accelerated and the temperature high.

The first acute attack can be completely cured, but in chronic cases cure is rarely effected.

In acute cases the shoes should be removed at once and the feet kept in cold water up to the ankles, the horse only being taken out for a part of the night in order that he may lie down. The cold foot bath should be continued until the fever in the feet subsides.

Give the following: Four ounces saltpeter in water *until the fever is gone, at six-hour intervals.* In cases of excessive temperature give ten drops of aconite every two hours for twenty-four hours.

This disease usually runs its course in four or five days, but if at

the end of that time there is still fever in the feet, blister at the coronet with biniodide of mercury or cantharides, one part of either to eight parts of lard. Wash off after twenty-four hours and repeat in a week if necessary.

CORNS.

Corns usually result from an injury, or undue pressure on some portion of the sole of the foot, and are most frequently found at the inner corner of the front foot.

They may be located by pinching the sole with the blacksmith's pincers or tapping it with the hammer.

When found, the sole should be cut down thin over the corn and the pressure removed from the horn in the vicinity, or the horse shod with tips.

INJURIES TO THE FEET.

These injuries usually occur through the puncture of the sole or frog by nails, wire, glass or sharp stones, and through carelessness or lack of skill in the smith.

These wounds are very serious if not properly cared for, and become the more so the nearer they approach the center of the foot. The tendency to suppuration and subsequent lockjaw is very marked in these cases.

I would state that during the construction period at the World's Fair, the stables of which were under my supervision, something over 200 cases of this kind occurred, and in the great majority of instances the injured horse was at work within twenty-four hours. The practice followed there was to have every hoof washed out whenever the horses came into the stable, and they were then examined by the barn foreman. If a nail was found it was immediately removed and the wound thoroughly pared out and cleansed. If serious, it was poulticed at once; if slight, it was washed with a one per cent carbolic solution, the opening in the sole stopped with a pledget of tow dipped in tar. This was held in place by a leather sole under the shoe, the space between the leather and the sole being packed with oakum. In the severe cases the poulticing was continued until suppuration ceased, when the wound was treated as just described.

SORE BACKS.

It is hardly fair treatment to say there should be no sore backs, for in spite of constant care in this direction, they will occur in every considerable command which has any work to do.

Accidents when the saddle is off, bad saddling, bad riding, loss of flesh through hard work, are some of the causes. Early treatment in all cases is necessary.

Treatment: First, when the skin is not broken.

In these cases the trouble is manifested by a slight swelling which is feverish and sensitive to the touch, and which appears shortly after the saddle is removed. The best treatment of these cases is continued bathing in cold salt and water until the fever disappears and the swelling subsides.

If this can be accomplished and the original cause removed, no further trouble will probably ensue, but as the cause is not always readily discovered, the slight injury may run on from bad to worse, until suppuration takes place and the horse is practically unserviceable. Pus once formed should be removed by lancing the containing sack, and washing the same out with a one per cent. solution of carbolic acid or a lotion of two drams sulphate zinc in a pint of water. The horse should not be ridden for four or five days unless absolutely necessary.

These sores often degenerate into sit-fasts, where the skin and connecting tissues become hardened and must be removed by the knife. Recovery in these cases is extremely tedious.

Second: Where the skin is broken or chafed. In these cases frequent bathing with any cooling astringent lotion is beneficial. The following are good, viz: Two drams sugar of lead, two drams sulphate of zinc in a pint of water; half ounce turpentine and one ounce vinegar; tincture of arnica one dram, water half pint; tincture arnica one dram, sulphate of zinc, two drams, ten ounces of of water; whisky and white of egg beaten together. Collodion applied with a brush. The horse should not be ridden for a day or two.

The use of homeopathic remedies in veterinary practice is increasing, and the results, especially in the treatment of diseases of the respiratory organs, have been excellent. There is no doubt in my mind that there will be a constant increase in the use of these remedies. They are put up in proper strength and with full directions. They are easy to give, and if care is taken in their use, are effective.

Do not give your horse a lot of medicine until you know what is the matter with him. Even horses are sometimes killed by kindness.

SOME IMPORTANT FACTORS IN THE INSTRUCTION OF CAVALRY.

By Lieutenant ALLYN K. CAPRON, Seventh Cavalry.

WERE I to attempt any full description of the methods to be employed in the instruction of mounted troops, I should require the space of a volume, and not that of an article. And yet it may not be uninteresting to refer to a few of the more important points in this subject. Of course I do not believe that all officers will agree with me in some of the following remarks, but, nevertheless, I take the liberty of presenting them to the readers of the JOURNAL.

Horsemanship, Training of Remounts, Mounted Drill.—Often while witnessing a ride in the "bull ring," or riding hall, I have been struck by the number of poor horsemen. It would seem that but few of the men have good hands or a natural seat, but that in nearly all cases the shoulder joint and arm of the bridle hand are held fixed and rigid, and do not yield to a single motion of the horse. As stated above, that easy, natural seat, the very foundation of all military riding, is conspicuous by its absence. Seldom are the legs properly applied as aids, but in the majority of cases no attempt is made to use them for such purposes at all, as many of the men cling to their horses with the calves, and thus render it impossible to use the lower leg as an aid.

After much thought upon the subject, I have come to the conclusion that there are three principal reasons for this bad showing. They are as follows:

Firstly. As a general thing, when recruits are being taught to ride, almost as soon as they can "hold on," they are put through the mounted exercises and the various other circus feats which now constitute such an important part in the education of a cavalryman. Now, as the men have not acquired a natural seat, and do not

understand even the first principles of horsemanship when they begin this fancy riding, they are forced to hold on as best they can, and commit the errors outlined in the preceding paragraph. It is a well-known fact that when once a recruit falls into the habit of clinging with his calves he can never become a perfect master of his limbs, and therefore can never learn to apply the aids properly, while as to the results of depending upon the reins to maintain the balance, nothing need be said.

The mounted exercises are very good indeed for the purpose of making the men quick and agile, and to give them confidence and a well balanced seat in every variety of movement. They should not, however, be given until *after* the recruits can *ride* and have a firm, close seat, which is entirely independent of reins and stirrups.

Secondly. When first learning to ride, the hardest thing to attain is "balance," and if a man is first taken out bareback he has a very difficult job in endeavoring to maintain his balance. Consequently, in order to save himself from falling, he soon gets into the way of clinging to his horse like a monkey, and not only acquires a bad position, but ruins his "hands," as he holds on to the reins with all the strength of his arms.

Experience has shown me that the best method of instruction is to give the men saddles for the first two months. The saddle with stirrups assists them in assuming the proper position, helps them to keep their balance, and aids the instructor to cause them to use their hands lightly from the very first lesson. After two months' instruction with the saddle, then give them four on the blanket, and it will be found that they will, at the end of their course, have better, firmer seats, and lighter hands, than the men who were first "shaken" into the military seat bareback.

They also make more daring riders, as having had no falls or very few at the most, they are not very careful, and, as they can combine the action of their hands and legs in a better manner than the men who have fallen into the "monkey seat," they will be able to turn their horses when and where they please, and thus save themselves and their mounts many a hard tumble, the very knowledge of which will serve to make them dashing and fearless horsemen.

Now in the army, the very first thing is to put the recruits on bareback, and of course they soon fall into the faults explained above.

Thirdly. While it may not be necessary to instruct all of our men in "high school riding," still they should be taught to supple

and unite their horses, so as to have them under complete control. At present they know nothing of the power to be gained by the proper use of the legs, or of the effect of the hand, while as to producing the different forms of collection of the forces of the animal, and the best methods of overcoming his resistances, they are completely at sea.

Horsemanship is the ground-work upon which the efficiency of cavalry depends. Therefore, one of the best things that could be done for the cavalry would be to establish a "school of horsemanship," where officers selected from every cavalry regiment could be sent and taught the true art, and also to train a horse and rider from the beginning to the end. The theory and practice of bitting, the treatment and care of horses, their diseases, the principles of shoeing, hygiene of stables, etc., should also comprise a part of the course. These officers, upon returning to their regiments, should be required to instruct the junior officers and the non-commissioned officers in the same subjects. Then we would have regiments that could *ride*, and not merely stick on their horses; that could take their mounts at any gait over any kind of ground; that could use their weapons under all conditions; and that while doing all of the above, could save their horses by bringing the strain of the work upon the stronger parts.

But the inspectors make the army. Most of them ask for fancy riding, and of course they get it. And of course our recruits are taught to vault over a horse before they can sit on one. If the inspectors wanted *horsemanship*, they could get that also; but they do not, and it is for this reason that the art of riding—*military riding*—receives so little attention in our service; for if a man's record depends upon his ability to stand on his head, he is going to practice that, and that only.

Many of our men can stick on a horse however wild and vicious he may be, and nearly all of them manage to go through the different drills in some sort of fashion. But the ability to simply stay on a horse is not horsemanship. These men use only brute force instead of skill, and as they cannot collect their horses by the use of their weight, of the legs and of the reins, they cannot get from their mounts the most complete obedience.

Quite a number of troopers sustain themselves when riding at the trot or when jumping, by the reins; many do not sit well down in the saddle; some lean the body too far to the front or rear; others curve the back to the rear; while nearly all turn out the toes. Very few enlisted men can cause their horses to execute the

gallop changes, or in other words, compel them to gallop true under all conditions, and I have seen many of them ride on the fork. Now, all these faults and the many others committed by the majority of troopers at every drill, are due entirely to bad preliminary instruction, given by drill masters who do not know how to ride themselves, because they were never taught *horsemanship*.

If these instructors, who are usually non-commissioned officers, had been taught by officers who had graduated from the "school of horsemanship," and who, consequently, knew how to train a horse and rider from the beginning up, the result would have been much different. They could then have taught the recruits, not only to vault their horses and perform the other mounted exercises, but, what is of more importance, would have made *horsemen* of them.

The proper training of remounts should also be more thorough than it is at present, for an unbroken or poorly trained horse is as useless for cavalry work as a poor horseman; and even more so, for cavalry, even if it can ride well, becomes nearly worthless when badly mounted. If any one doubts that our horses are not thoroughly trained, let him look at a troop at mounted drill and see how many of them are under perfect control. Let him notice how few of them will leave the ranks without backing up against the others and otherwise breaking up the formation; how few will stand perfectly still and square while being mounted. Let him count the number of "pullers" and runaways, and the few that go with their heads steady and in the proper position. Now, all of this comes from lack of training, for which there can be no excuse.

Every horse should be taught absolute obedience, by which is meant that he must, "under all conditions, go where his rider wishes, is not a puller, and obeys at once the aids applied by the leg, rein, or alteration in the balance." He must be taught the different gaits in order to render him safe over all kinds of ground and to prevent premature breakdown, for if he is well gaited and carries himself properly then he will be in proper balance and his weight will be evenly distributed over all four legs. The lessons in suppling and collecting, and the movements upon two paths must all be thoroughly taught, to train the horse to obey the pressure of the legs and reins, to carry himself properly, and to instill the idea of unconditional obedience. At the same time they prepare him for the instruction in the different gaits, and for backing and jumping.

The method of training horses laid down in our drill regulations is very good, but does not go far enough into the subject.

However, if it was practiced thoroughly, our horses would be better trained than they are at present.

After they are trained, the horses should be "put in good condition," and kept there, that they may be able to take the field at any moment. By condition, I mean that they must have plenty of wind, and muscle must be hard, and "have endurance enough" to go thirty miles a day, at a good pace for a month or more, without showing signs of *fatigue*. To accomplish this, at least four hours drill six times a week, for the most part at the trot and gallop, must be had during the drill season, and about twenty miles should be covered in each day's drill. At present most of our horses are too fat and soft, and not fit for field duty, because of the small amount of exercise they receive, while the large number of sore backs usually seen after a hard practice march, are due more to lack of condition than to badly fitting saddles or to carelessness on the part of the men.

Once the men have been taught to ride and the horses trained, then the drill field is the place for real work. But the work on the drill field should not consist entirely of "fours right and left," for nothing is so useless and so wearisome as this constant drumming of the same old tune, day in and day out. There is plenty of work in the drill book other than the movements by fours, and it is just as important.

When the movements are thoroughly learned, and can be executed with precision on the level drill field, then all drill by troop, squadron or regiment should be on uneven ground, covered with all kinds of obstacles, where the actual conditions of war are to be found, and I shall repeat that this kind of drill should be at the fast gaits and of at least four hours' duration six times a week, during the period set aside for this work. Neither should a little rain or other bad weather be allowed to interfere with drill. Rain never keeps the old guard from police duty; neither should it keep the troops from drill.

In this way our men would become accustomed to riding boot to boot at a gallop, straight across any kind of country, over ditches and other obstacles, without breaking the alignment or order, while the horses would be ready for the long gallops and fast work that would be demanded of them in time of war. This riding stirrup to stirrup is one of the fundamental principles of the charge and must be insisted upon at all times when drilling in close order.

For fast work in line the "follow my leader" system should be used, as it is much better for such purposes than the "base system." Among the most valuable paragraphs in the new drill regu-

lations (1896), are those relating to the "following trace" method, and they alone would make it the best book we have yet had.

In a cavalry fight, especially where forces larger than a troop are employed, it is of absolute importance that proficiency shall have been attained in keeping the true direction and the proper pace. To acquire this, and to execute the "follow my leader" system to the best advantage, the horses of every troop must be uniformly gaited, that is, every horse must be taught to walk four miles an hour, trot eight and gallop twelve. Furthermore, each and every horse must move at the gait ordered—all must trot when the signal trot is given, and gallop if that gait be designated.

All of the work outlined above is absolutely necessary, if we wish to teach our troopers to charge properly, and to train them to ride their horses square to the front, and to keep them well in hand; and lastly, how to spare their mounts until the decisive moment, when they are to collect every particle of muscle there is in them, to throw weight, strength, dash, and speed into the charge.

If cavalry cannot perform all of the above; if it can be stopped by every little obstacle, and if it cannot cover five or six miles at the fast gaits and then go into the charge with horses still fresh and strong, it is not worthy the name of "cavalry."

All modern cavalry leaders agree in saying that if important results are to be expected from the use of cavalry in battle, it must be kept in masses and not broken up into small detachments. To handle these large masses with skill and energy, practice must be had in time of peace, or we "shall be found wanting" at the critical hour. Squadrons, and at least once a year regiments, should be united and placed under the command of their own chiefs. These officers should always drill their commands, as only by practical experience can they become proficient in handling them. At present nearly all our regiments are broken up and the troops scattered to the four winds of heaven, and it is a fact that many of our young cavalry officers have never seen their colonels. To unite each regiment for two months every year would not cost too much money, when the vast amount of good the cavalry would receive thereby is taken into consideration. To suggest that brigade evolutions be had each year would, however, bring down the wrath of all good Congressmen upon my head. We can sink a million dollars in some little canal away down in Florida, but when it comes to spending a few thousands to increase the efficiency of our army—well, that is a different question.

Arms.—The cavalryman receives quite a thorough course of instruction in the use of his carbine and pistol. I believe, however, that moving targets should also be employed for both arms as well as stationary ones, and that more practice in firing the carbine rapidly, but with deliberate aim, should be given. A sight constructed on the same principles as the Lyman sporting rear sight, where the aperature is brought close to the eye, and the entire object aimed at is seen, instead of only a small portion of it, would be much better than the present one, as the men could then learn to shoot with both eyes open, which is the best method for rapid and yet accurate work. Volley firing by platoons, each under the command of its own chief, should also constitute a part of the practice, as it would not only aid in perfecting fire discipline, but would give the leaders confidence and experience in handling their commands in the different firings. All leaders of squads, platoons and troops should be frequently practiced in estimating distances, as upon their judgment in this direction the effect of controlled fire very often depends. Instruction on varied ground and in the use of cover should be given during target practice, the men firing at targets from behind walls, rocks, or trees, in ditches, from the edge of a wood, etc. Practice in firing with the carbine when mounted would also be most beneficial.

But it is in the use of the saber, however, that our cavalry is so sadly deficient, as few of the men can fence. The drill regulations treat on the subject, but the men are usually instructed in the art by a sergeant who has never been taught by a competent teacher, and who has picked up his knowledge from reading the drill book. It is a well known fact that no man can become an expert with the saber by simply studying a text book. The saber is the weapon with which all charges in close order should be made, therefore, to give the men confidence in themselves and their weapons, they should be thoroughly instructed in fencing by a competent instructor, who is himself an expert in the use of the blade.

Minor Tactics and the Employment of Cavalry—At nearly every post where I have served, very little practical instruction was given in minor tactics. Once or twice a year we were ordered out and made an attempt to post an outpost or to act as an advance guard, but the work was always very poor and principally for two reasons:

1st. The officers while understanding the theory of the work in hand, had little, if any practical knowledge of the subject.

2d. Because the men knew nothing whatever of their duties, either theoretically or practically.

Every command should be thoroughly instructed in the service of security and information, theory and practice going hand in hand throughout the entire course. Such instruction should be given progressively, that is, the men should first be taught the theory of patrolling, and then thorough practice in this work should be given in the field. When this is well understood, then the theory of the advance guard should be given, after which practical work in the same should be taken up. And thus, step by step, the different branches of the subject should be given, until all are familiar, not only with the theory, but can perform their duties properly when in the field.

In the same way the employment of cavalry against cavalry, infantry or artillery should be taught, and the dismounted action of cavalry explained and practiced. The fighting formation of the different units, as the squadron, regiment and brigade, on the field of battle; the role of the cavalry before and during an engagement; the pursuit of an enemy, and the manner of conducting a retreat; the support of artillery, and the manner of working with horse artillery; the escort of convoys; the crossing of streams with pack and wagon trains, etc., etc., must all be explained and practiced.

Night exercises should also be practiced, for in the future night attacks, and more especially night marches, will play an important role with cavalry, and the troops should be trained for night fighting, both as the attacking force and as the force surprised. Especially important is patrolling by night, in which the men can only become proficient by constant practice.

Another thing that demands a vast amount of attention and constant practice is the duty of the second and third lines in conforming to the movements of the first, and the use of the second either as an offensive or defensive flank. "Nothing is more urgent to insure success than the skillful and intelligent handling of the second and third lines, and of all the operations of cavalry, none present greater difficulties." General DEBRACK says in his book: "Almost all the failures of charges are due to the slowness or ignorance of the supports."

And yet how seldom we see any work of this nature that really amounts to much as a means of instruction. True, we have sham fights where lots of powder is burned, and still more excitement prevails, but where we often see troops badly handled. Such things are worse than no instruction, as they are the means of forming bad habits and wrong ideas.

The above are only a few of the many important subjects with

which all cavalrymen must be familiar. To become proficient in all, at least six hours a day should be set aside for military instruction, and during some periods of the year, eight or even ten would not be too much. I do not believe in working the soldier to death, but I would require a good, hard day's labor of him—in drill and instruction, but not in fatigue duty. There is plenty of time if we would only use it, but the trouble is, we have so long been accustomed to the one hour's drill a day, that we imagine we are greatly abused when called upon for anything more.

There are exceptions to nearly all rules, and the same applies of course to all of my remarks. There are troops where the horses are well trained and the men horsemen; there are posts where the instruction in minor tactics, etc., is most thorough. Of the first I have seen a few; of the second, I am bound to say, I have never yet had the good fortune to serve at one. My entire article is based on what I have found to be the rule at the ten or more posts at which I have observed the drill and instruction of troops.

In conclusion, I will state that when drilling or instructing our troops we should always bear in mind that the causes of the extension or contraction of the role of cavalry during the different wars depend almost entirely upon the principles which have governed its training and employment, or in other words, more upon the character and ability of its leaders than upon the many improvements in firearms. In the words of General WOLSELEY, "It should be instilled into the mind of every cavalryman that his branch of the service is invincible, and more than a match under all circumstances for infantry or artillery. * * * If he thinks otherwise, the sooner he transfers to the infantry the better. Every cavalry officer should be a fanatic upon this subject. All should remember the old cavalry proverb, 'Commend your soul to GOD and charge home.'"

THE SANTA FE TRADE: ITS ROUTE AND CHARACTER.

By J. EVARTS GREENE.

LESS than twenty years ago, a traffic, which had been carried on for half a century under conditions unique in North America, came to an end, or, to speak more strictly, though the traffic continued, its conditions, which had been mediæval, oriental and, for this century and continent, singular, became modern, American and commonplace.

The Santa Fe trade resembled that of the caravans of Africa and Western Asia in that it traversed a desert, or what was then so called—the Great American Desert; it was also attended with dangers from the attacks of wild, marauding tribes. It differed from that, however, in the fact that there were no oases or inhabited stations on the long route, and in the contrast in the peoples and the conditions of life of the communities between which this traffic was conducted. At the eastern terminus was the rude, busy, enterprising, essentially modern and progressive life of our western border, distinctively American, using that word, as we must so often, in default of an adjective denoting that which pertains to the United States. At the other end of the route, the social, industrial and political condition of the people was substantially unchanged since Spanish rule was established in Mexico by CORTES and his companions early in the sixteenth century, and with no prospect of a change for centuries to come. This remark applies, of course, to the conditions prevailing when the trade was begun and for many years afterward, but not so strictly to the last twenty-five years of its existence.

To one, familiar only with the life of the Eastern States, who thirty-five or forty years ago visited Kansas City, which had then scarcely ceased to be known as Westport Landing, the sight of the huge wagons crowding the levee in early summer, with their

drivers, short in stature, slouching in gait, dressed with a peculiar shabby finery and with swarthy, stolid, sinister faces, was extremely fascinating, and suggested thoughts of romantic and mysterious adventure. That sight has not been seen for nearly twenty years. The railroad, while vastly increasing the trade, has transformed it into a prosaic, ordinary traffic. The Great American Desert has vanished. The empty waste is sprinkled with cities, villages and farms. The buffalo is nearly extinct, the Indian is no longer nomadic or predatory, and Santa Fe is, from the business point of view, simply a station, more or less like other stations, on a branch of the great transcontinental railway.

The old Santa Fe trade has only an historical interest now, and in that sense it is, I trust, a proper subject for the attention of this society.

The first Europeans to penetrate to the region traversed by the caravans of the Santa Fe trade were CABEZA DE VACA and his three companions, survivors of the company of PAMPHILO NARVAEZ. After nine years of wandering from the shores of Florida, they arrived in 1536 at Culiacan, near the Pacific coast in Mexico. It does not appear that their devious route crossed the line of the Santa Fe trail. It was probably altogether south of the latter. But the story which they told of rich and populous cities in the region north of Mexico prompted the famous expedition of CORONADO, who, setting out from Culiacan with a large force of Spaniards and Indians in 1540, wandered in New Mexico, wintered there, apparently not very far from Santa Fe, and in the spring set forth again toward the northeast in search of the city of Quivira, of whose greatness and riches he had heard surprising fictions.

I will not discuss the disputed questions concerning the identity of the places mentioned by CORONADO in his narrative of the earlier part of his journey. But I venture to offer a few suggestions in support of the opinion that its northeastern terminus was near that of what has been known in our time as the Santa Fe trail. Combining the account of CORONADO in his third letter to the Emperor CHARLES V. with that of Captain JUAN JARAMILLO, one of his companions, whose itinerary is fairly definite, it appears that after traveling for many days across great plains, where they encountered marvelously vast herds of buffalo, and suffered much from thirst, they came, on the day of Saints PETER and PAUL, to a river to which they gave the names of those Saints. CORONADO briefly but graphically describes the prairie, which seems to have impressed him with awe and almost with dismay. "There is neither rock nor hill," he

says, "nor tree nor shrub; nothing to arrest the eye, which seeks in vain for a limit to those endless plains as if gazing at the open sea."

They crossed the river, says JARAMILLO, and advanced along its northern bank in a northeasterly direction for three days, when they came to an Indian village on a considerable affluent of this stream. The Indians resembled those they had before met on the plains, but were hostile to the latter. They ate buffalo's flesh raw, and their dwellings and clothing were made of buffalo skins, but they also cultivated maize. Travelling four or five days farther, they found successively, six or seven other Indian villages on other affluents of the river, and at last came to a village whose name, they were told, was Quivira. It was not a rich and populous city, but a miserable group of skin huts, like the others. Here CORONADO remained twenty-five days, sending out parties which explored the neighboring country to some extent. He was told of other villages farther on, on the bank of a still larger river. He says the latitude of this place was forty degrees; that the country was well watered by rivers, brooks and springs; that the soil was rich, deep and black; that the pasturage was excellent; that the Indians cultivated maize; that there were plums in abundance like those of Spain, and excellent grapes. JARAMILLO adds to these fruits, nuts and mulberries. CORONADO pursued his quest no further, but returned, retracing for some distance the route by which he came, and arrived at Cicuye, whose site is supposed to have been some sixty or seventy miles to the eastward of Santa Fe, in forty days.

When I read the account of CORONADO's expedition in the chapter on "Early Explorations of New Mexico," contributed by our associate, Mr. HENRY W. HAYNES, to the "Narrative and Critical History of America," it seems to me that there could be little doubt as to the northeastern limit of CORONADO's explorations. CORONADO's and JARAMILLO's descriptions of the country traversed after they arrived at the river named by them for Saints PETER and PAUL, precisely fit the valley of the Kansas or Kaw River, with which I was once very familiar, having made the land-office surveys of a part of it.

I infer that the Smoky Hill or main fork of the Kaw River was the river Saints Peter and Paul, because, besides other reasons, it is the only considerable stream flowing northeastward within reasonable distance of the place where CORONADO, according to his previous and subsequent narrative, must have been. He came to the river, apparently, not far from the mouth of the Saline Fork, or

Grand Saline, about sixty miles from the present site of Fort Riley. Following the course of the river on its north bank, he came, after three days or more, to an Indian village on a tributary of the river. Three days' journey over a level route would bring him to the confluence of the Republican Fork, where there would certainly be an Indian village, if anywhere. For there the bluff is high and steep on the north, sheltering the place below from the fierce and bitter winter winds. Wood is abundant; it is almost the first considerable growth of timber, except cottonwood and elm, encountered by the traveler from the westward, and the bottom lands, broad and rich, required little labor to convert them into corn-fields. Continuing his journey for four or five days, he passed other villages in like situations, that is to say, on other branches of the river Saints Peter and Paul, and came at length to Quivira, not far, as I suppose, from the present site of Lawrence, and he was told of other villages beyond this on a larger river, which, if my theory is sound, must have been the Missouri.

The latitude of Lawrence is about thirty-nine and one-half degrees. CORONADO says his limit was forty. Greater precision could scarcely have been expected. He says the country was well watered with rivers, brooks and springs. Anyone who had occasion to travel with wagons along the valley of the Kaw River before the era of bridges was painfully reminded of the fact that the streams are numerous, and, what is unusual in a region so level, springs are many and copious. I well remember two, which, if CORONADO took the route which according to my interpretation of his narrative he says he did, he must have discovered and drunk from. One is a circular basin, ten feet or more in diameter and four or five deep, from which a stream, two or three feet wide, of clear, cold water flows to the river. Another, some twelve miles distant, we called the Seven Springs. For some distance along the foot of the bluff, streams of bright, cool water broke through the gravelly soil, and these uniting formed a delightful brook, which wandered through the wide bottom lands, a mile and a half to the river, near where the town of Abilene now is. Both these springs are in the open prairie, unconcealed by tree or shrub, and no traveler through that valley could have missed them or resisted the temptation to drink of their waters; for the river is somewhat turbid, and its water, though wholesome enough, I believe, is not very palatable, having a slightly alkaline taste. The plums and grapes, mulberries and nuts are there. The quality of the plums varies much; those from some trees are large, handsome and not ill-

flavored. The grapes are abundant enough, but CORONADO would not have written so confidently of their excellence if he had waited until they were ripe. The mulberries, ripening in June, were gone before his arrival, but JARAMILLO probably recognized the trees. The nuts most abundant there are black walnuts and pecans.

CORONADO came to this river on the days of SAINT PETER and SAINT PAUL, June 29th and 30th, according to the calendar of his church. His journey of eight days or more down the river and his stay of twenty-five days at Quivira occupied him until the second day of August or later, so that CASTAÑEDA, who says that they arrived at Cicuye in August, after a return journey of forty days, must be in error, and JARAMILLO, who fixes the time of their leaving Quivira at about the middle of August, is apparently correct.

The description of the province of Quivira fits the Kaw River country exactly. It will not fit any other nearly so well. Some portions of the Arkansas valley agree fairly well with the description, but the latitude is hopelessly wrong. The Platte River is more than a degree farther north; not so far that it need be ruled out on that score merely, but otherwise it is unlike CORONADO'S river of Saints Peter and Paul. It seems highly probable, therefore, that CORONADO, though his route was not that of the Santa Fe trail centuries later, was the first white man who passed from one to the other of its terminal points.

From FRANCISCO VASQUEZ DE CORONADO to ZEBULON M. PIKE is a long step, not only in time, almost three hundred years, but in the contrast between the sonority of the name of the Spanish knightly adventurer and the homely quaintness of that of the American soldier. But Lieutenant, afterward General, PIKE was as adventurous, as intrepid, and as skillful a leader of men as the first explorer of New Mexico, and more honorable, just and humane. He was the next person of whom we have certain knowledge, who passed from the Mississippi Valley across the desert plains to Santa Fe. A vague tradition asserts that, in the eighteenth century, trade was carried on to some extent between the French settlements on the Illinois River and New Mexico, and proof of it has been said to exist in the archives of the Spanish government of the province. It is said also, that in 1804 one MORRISON of Kaskaskia, sent a Frenchman named LALANDE with goods for trade in Santa Fe, and that the faithless agent, having sold the goods profitably, neglected to account with his principal, lived prosperously in New Mexico and died there a rich man. These may be facts or fictions, but ZEBULON PIKE and his expedition pertain to the history of the Santa Fe trade, though he was a soldier and not a trader.

Having the year before conducted a successful expedition to explore the upper waters of the Mississippi, Lieutenant PIKE was in 1806 directed by General WILKINSON to explore the country to the westward so far as the headwaters of the Arkansas and Red Rivers. Setting out from St. Louis, he went across the country to the Arkansas, and ascended that river to its headwaters, thence passed to the Rio Grande, some distance above Santa Fe. He built a small fort there, seeming to have believed that the stream was the Red River, or one of its tributaries, and that he was within the territory of the United States. He was treacherously enticed from his little fortress by the Spaniards, made prisoner and sent back by way of Mexico to the United States. There was an appearance of mystery in some parts of his conduct on this expedition, and by some persons it was supposed to have a connection with the schemes of AARON BURR, but PIKE indignantly repelled this suspicion. He gave an interesting account of his expedition in his official report, in which, among other notable things, he writes of passing through vast herds of buffalo, elk, and "cabri," and says he prevented the wanton slaughter of these animals by his men, "not merely because of the scarcity of ammunition, but as I considered the law of humanity also forbade it." He would deserve to be honorably remembered for this, if for nothing else. Few of his fellow-countrymen in later years and in like circumstances have been so merciful. ZEBULON PIKE, then a brigadier-general, was killed in the battle near York, Upper Canada, April 25, 1813.

We come now to the actual beginning of the Santa Fe trade; but before treating of its history and its character let me give a brief description of its route. Its real eastern terminus was St. Louis, where the goods were purchased and the accounts adjusted. But the starting-point of the caravans was at first Franklin, a town about one hundred and fifty miles from St. Louis, on the Missouri River, afterward Independence, one hundred miles farther up the river, and finally Kansas City, known for some years as Westport Landing, Westport being a village five or six miles south of Kansas City on the State line, where for a time the forwarding-houses were established and the caravans made up for their journey of eight hundred miles. The route then was by steamboat from St. Louis to Kansas City, and by wagon from that place to Santa Fe. I may add that for a short time during the War of the Rebellion, the starting-point of the caravan was changed to Leavenworth, Kansas.

Except for its lack of mountain and sea, a more beautiful and attractive landscape can scarcely be found anywhere, than that near

the confluence of the Missouri and Kaw Rivers. In the late spring or early summer, it is especially charming, when the grass on the prairie is fresh and sprinkled profusely with flowers of many hues; when crab-apple thickets, many acres in extent, are covered with pink blossoms, surpassing in depth of color and delicacy of fragrance the bloom of our orchards; when the mignonette-like perfume of the wild grape and the subtile sweetness of the sensitive brier, a species of mimosa, with its flowers like purple globes, sprinkled with gold-dust, entrance the senses like—

> Sabean odors from the spicy shore
> Of Araby the blest.

The oppressive monotony of the wide prairie is broken by gentle slopes and deep ravines, well wooded with groves of stately oaks and walnuts, which form promontories of woodland, jutting out into the open-prairie sea; and graceful elms, tall cottonwoods and stately sycamores adorn the margins of the streams. Pleasant brooks wander through the valleys, and plenteous springs entice the wayfarer by the sparkle and murmur of their cool, sweet waters. The Mormons, who occupied for a time about 1833, a district of like character in the adjacent counties of Missouri, styled it the Land of Promise—the Garden of the Lord—and well they might.

Not much of the route, however, was of this character. Leaving the Missouri at Kansas City, it followed in general the high prairie divide between the valleys of the Kaw and the Arkansas Rivers. If ease of travel were the only consideration, the summit of the dividing ridge or plateau would be the best route, affording a direct, almost level road, absolutely without obstructions, for more than a third of the whole distance. But in order to have daily supplies of water, it was necessary to follow along the southern slope of the divide, far enough below the summit line to intercept the tributaries of the Arkansas near their sources. These streams, the Marais-de-Cygnes, Neosho, Cottonwood and others, were encountered at suitable distances for camping-places, about twenty miles, more or less, being a day's journey.

Of the three requisites for a camp—water, grass and wood—the second was scarcely ever lacking, and the third was superfluous after entering the buffalo range, its place being taken by "buffalo-chips" or dried dung, which, readily gathered and making a clear, hot fire, met perfectly all the requirements of a summer-camp fuel. The route presents no difficulties; the early traders had some trouble through losing their way, but after the trail had been established, it was, without the expenditure of any labor in grading or

otherwise, a broad, well-worn highway, as distinct and unmistakable as any road in Massachusetts, stretching away for eight hundred miles without being crossed by any other, with no permanent habitation of man near it, and without a hill or ravine so steep or other obstacle so formidable as to make lightening of loads or doubling of teams necessary. Beyond Council Grove, one hundred and forty-five miles from Kansas City, no timber except an occasional cottonwood or elm was seen until within a short distance of Santa Fe. The rivers crossed were the Arkansas, Cimarron, Canadian and Pecos.

Mr. GREGG, whose book entitled "Commerce of the Prairies," is the best authority on the early Santa Fe trade, says that when he made his first journey in 1831, buffaloes were not encountered until he had gone some distance beyond Council Grove. He says, also, that he never saw buffaloes so abundant as some travelers have represented, but only scattered herds, a few scores, hundreds and sometimes thousands, and that ten years later they were "very sensibly and rapidly decreasing." Fifteen years later still, I found the eastern limit of the buffalo range as nearly as possible where GREGG placed it; but, instead of finding them less abundant than some travelers had represented, their numbers seemed so vast that exaggeration would be scarcely possible.

The caravans were sometimes attacked and more often threatened by marauding Indians, but the danger, except of a loss of mules or cattle by stampede, was not great. GREGG writes, about 1842: "In the course of twenty years since the commencement of this trade, I do not believe there has been a dozen deaths upon the Santa Fe route, even including those who have been killed off by disease, as well as by the Indians."

The first actual trading expedition to Santa Fe from the United States appears to have been that undertaken by KNIGHT, BEARD, CHAMBERS and others in 1812. They followed PIKE'S route up the Arkansas, and meeting with no remarkable adventure, arrived duly, expecting to find the republic proclaimed by HIDALGO in 1810 fully established there. But they found the Spanish royal authority still recognized, were suspected of connivance with the revolutionists, and were held as prisoners for nine years, until ITURBIDE established the republic in 1821 and set them at liberty.

In that year, BICKNELL and others left Franklin, Mo., with a small stock of goods, intending to trade with the Comanche Indians on the Upper Arkansas. Having heard of a better market at Santa Fe, they went there, and sold their merchandise at a surprising

profit. Until this time, all goods consumed in New Mexico which could not be produced there had been brought from Vera Cruz by pack trains, and the costs and risks of transportation were so enormous that common cottons sold for three dollars a yard, and other manufactured goods at correspondingly high prices. When the St. Louis merchants learned that a practicable route gave them access to a market where their only competitors must sell at such rates, they did not long neglect their opportunity.

Captain BICKNELL started again the next year with a larger stock, which he sold to advantage, but nearly perished on the route, having lost his way between the Arkansas and Cimarron Rivers. This part of the route was most dreaded by the early traders. The distance between the rivers, as the trail was finally established, was about sixty miles. It was the only part of the whole journey in which more than one day's march must be made without water. Mr. GREGG regards BICKNELL'S expedition as the beginning of regular traffic on the Santa Fe trail. Two years later, in 1824, wagons were first used in this trade, the previous means of transport having been pack animals. It was found that the natural highway offered no serious difficulties to the wagons, and thereafter they were almost exclusively used. Twenty-five are said to have taken the trail that year, carrying merchandise valued at twenty-five or thirty thousand dollars. The early traders went in small parties, each having a few hundred dollars' worth of goods. The Indians at first were not hostile, and Mr. GREGG says: "It is to be feared that the traders were not always innocent of having instigated the savage hostilities that ensued in after years." Whether he means by this equivocal expression that traders prompted Indian attacks upon their rivals, or, that some of them provoked by their insolent cruelty indiscriminately attacked all traders, does not clearly appear. Whatever the cause in this case, the history of our relations with the Indians shows that misconduct on one side or the other, or perhaps on both, will in such circumstances infallibly supply provocation. For several years the traders suffered considerable losses of merchandise and cattle by Indian attacks. They applied to the government for protection, and in 1829 and 1830 a military escort was furnished. After that year the traders seem to have adopted the policy of protecting themselves by proceeding in large companies with some organization, which they could the more readily do as the amount of trade rapidly increased. Each company having, perhaps, forty or fifty wagons and more than one hundred men, chose a captain, who determined the order of march, the times of starting and halt-

ing, the place of encampment, and appointed lieutenants and sergeants, who commanded the guards, on which every able-bodied man was assigned to his share of duty. The captain had, also, a somewhat vaguely defined general authority, for which he commanded respect if he was a natural leader of men, and suffered it to fall into contempt if he had not the gift of inspiring fear and respect. Later, as the trade fell into the hands of men of larger capital, each of whom fitted out a train of thirty wagons or more, the owner or his agent took command, and better organization and sterner discipline were enforced.

The volume of this trade is said to have averaged one hundred thousand dollars annually for the first fifteen years. After that it increased rapidly. Statistics, kindly supplied by my friend, THEODORE S. CASE, of Kansas City, gave the information that the first cargo of goods for the Santa Fe trade was landed at Kansas City in 1845, by WILLIAM BENT and CERAN ST. VRAIN. In 1850, six hundred wagon loads went from Kansas City. In 1855, the goods shipped were valued at five million dollars. In 1860, the weight of the goods shipped from the same point was 16,439,000 pounds, employing in their transportion 9,084 men, 6,147 mules, 27,920 oxen and 3,083 wagons. The first wagons used were made in Pittsburg. Those used later were built by MURPHY of St. Louis, and known as MURPHY wagons. They were large and heavy, each carrying a load of six thousand or seven thousand pounds and drawn by six yoke of oxen or ten or twelve mules. The oxen were bred in Missouri, the mules in New Mexico. The drivers of the wagons owned by New Mexican traders were usually Mexican Indians, those of the Missouri traders, or of freighters, who supplied teams and drivers and transported merchandise at the rate of twelve or fifteen cents a pound, were usually "American" in the restricted sense in which that word was used on the frontier, or sometimes Shawnee or Delaware Indians. The most peculiar part of their equipment was the formidable whip, its stock a good-sized, tough ash or pecan sapling nearly ten feet long, with a lash somewhat shorter, but fully two inches in diameter, ending in a buckskin thong. To wield this tremendous implement required all the strength of a man's loins. The driver did not flog his beasts with it, but cracked it with a heavy flourish and a smart jerk. You would hear a sound like a pistol shot, and see a little mist of hair and blood start where the cruel thong had cut like a bullet.

The usual day's drive was from fifteen to twenty miles. At the appointed stopping place the wagons were driven up in such order

as to form a square enclosed space or corral, an entrance to which could be closed by stretching chains across it. At halting, often early in the afternoon, the cattle were watered and turned out to graze under the charge of herders. At night they were driven into the corral and the entrance was closed. In the early morning for some hours before starting they were turned loose again to graze. The men camped for the night outside the corral, but retreated to it for defense in case of a formidable attack by Indians.

The goods for New Mexico were cotton cloths (bleached and brown), calicoes, rich and showy silk shawls and dress patterns, millinery, *bayeta* (a heavy scarlet woolen fabric used for petticoats by the New Mexican women), sugar, coffee, soap, hardware, and, during the later years of the traffic, bottled beer, canned goods, mining machinery, and innumerable other things. The return cargoes consisted of buffalo robes, beaver and other skins and furs (collected by trappers and Indian traders), wool, gold from the placer mines thirty or forty miles south of Santa Fe, and silver from the mines of Chihuahua and elsewhere. The silver dollars, which formed a part of many return loads, were put up in peculiar quaint packages. The manner of packing them is thus described in a letter from Mr. ELIAS BREVOORT, of Santa Fe, who has kindly supplied me with much information of great use in the preparation of this paper: "Silver dollars were dumped in quantities of about five thousand into or upon a green or fresh beef hide, and done up by having a rawhide rope interlaced around the edge of the hide and drawn up tightly. Then a fire was built near it so as to shrink the hide solidly to its contents to prevent friction of the coin." These packages were as hard and their contents as immovable as if the metal had been melted and poured into a mould.

One feature of the traffic, which gave it a speculative character, and perhaps added to its fascination for some of the adventurous traders, was the uncertainty as to the amount of duties which would be exacted by the Mexican officers of customs. The rates fixed by law were well enough known, but the doubt was how much of a rebate the officials would allow, and how much they must be paid for it. A convenient and generally satisfactory arrangement, said to have prevailed for some time, was that the trader should have one-third of the duty, the official one-third, and the government the remainder. Governor ARMIJO, the last Mexican governor, at one time simplified the customs system by imposing by his own arbitrary authority a tax of $500 on each wagon-load of goods, in lieu of all other duties. The immediate effect was to make impor-

tant changes in the character of the goods imported and in the methods of transportation. Instead of wagons carrying from one to two tons each, which had been in use up to that time, much larger wagons, carrying from three to three and a half tons, were used, and coarse and cheap goods were omitted from the loads. The perverse ingenuity of the "Gringos" thus frustrated the purposes of the governor, and he repealed his own tariff, which had been made without authority, and never had legal force. But Mexican officers generally had few scruples as regards usurping legislative authority, and Governor ARMIJO fewer than most; and the New Mexican public and others having dealings with its government had learned by experience to submit to the ruling powers without raising constitutional questions unless they were prepared for a pronunciamiento. Though Santa Fe was the chief market of this trade and the destination of most of the caravans, some traders took their goods direct to Taos, Albuquerque, or other New Mexican towns, to Chihuahua, 200 miles south, or even to Sonora, on the Pacific coast in Old Mexico, thus arriving at CORONADO's starting point.

The men engaged in this traffic were merchants of a peculiar stamp, not unlike the merchants and master mariners of New England when discoveries were yet to be made by sea, and pirates, or other enemies not much better than pirates, were likely to be encountered. They were shrewd, prompt and daring, knowing their market well, but not averse from occasional rashly speculative ventures. Some of these, of whose mercantile achievements, as well as of their personal prowess and wild adventures, traditions still linger among the survivors of the time when the commerce of the prairie had a character of its own, were of French extraction, notably FELIX X. AUBREY and CERAN ST. VRAIN. The former is remembered chiefly for his famous ride from Santa Fe to Independence, unequaled, I believe, in the annals of horsemanship. He had wagered that he would ride this distance, 850 miles, in six days, and actually performed the feat in five days and sixteen hours, riding his own horse 150 miles and trusting to chance for relays for the rest of the journey. This achievement was commemorated by giving his name to a steamboat in the Missouri River trade, which I have often seen, proudly bearing at the head of its flagstaff the gilt figure of a horseman riding at full speed. Other famous rides were those of Mr. ELIAS BREVOORT, an old Santa Fe trader, still living, whom I have before mentioned, who rode from Puerta de Luna to Santa Fe—120 miles—in sixteen hours, and from Dona

Ana to Santa Fe —300 miles—in three days and three hours, the whole distance on one horse.

No one was better known on the plains from thirty to sixty years ago than CERAN ST. VRAIN. Traders, trappers, army officers, Indians, all either knew him personally or by reputation. Shrewd, enterprising, impetuous, choleric and intrepid, he was courteous and charming in manners, and I have been told that in his house at Santa Fe, all the conventional observances of polite society were carefully regarded, even to the point of appearing always at dinner in correct evening dress. His life was full of strange incidents and adventures, even beyond that of most prominent men of that region and time. He is said to have been born at Kaskaskia, or perhaps at Cape Girardeau, Missouri. In early life he entered the employment of the American Fur Company of St. Louis. With WILLIAM BENT he established a trading-post in New Mexico, known as Bent's Fort, and another known as Fort St. Vrain. To these forts, trappers from all the labyrinth of mountains for hundreds of miles around resorted to dispose of their furs and renew their equipment. KIT CARSON, JAMES BRIDGER, Old BILL WILLIAMS, VASQUEZ and many others, the equals of these in their time, though their names are not remembered, were among those who made these forts their rendezvous. About 1845, CERAN ST. VRAIN removed to Santa Fe, and had great success as a trader.

He was one of those men about whose memory traditions gather, and innumerable anecdotes are told of him. Here is a specimen: As he was playing cards one day with a Spaniard, a dispute arose and the lie was given. They separated with the understanding that when they next met they would fight it out. The meeting took place in the street, which the general public quickly left clear to the combatants. Each drew his pistol, and at the first fire both fell. They lay in the street exchanging shots, each of which inflicted a wound, until their weapons were emptied, when they were helped to their feet, shook hands and were carried off to have their wounds dressed. Both recovered and were friends, bearing no malice. Two knights of Richard-of-the-Lion-Heart's train would have fought out their quarrel with other weapons, but in much the same spirit.

JEAN PHILLIPE CHAVEZ was another well-known trader of the same type, chiefly remembered, however, for his tragic fate while defending his train from the attack of a company of bandits from Missouri, who had organized the raid, knowing that he was bringing from Santa Fe a great quantity of silver. CHAVEZ was killed,

and the robbers are said to have carried away treasure to the value of two hundred thousand dollars.

This incident, too, has a mediæval flavor, though it occurred no longer ago than 1850, I believe. Several of the robbers are said to have been captured and hung. This was not the only instance of the kind; indeed, the attacks of robbers were among the recognized perils of the trade. The JAMESES, YOUNGERS and FORDS, whom that part of western Missouri has more lately produced, were the legitimate successors of the border banditti of the middle of this century.

It is almost as hard to fix with precision the end as the beginning of the Santa Fe trade in the form which I have tried to describe. The last train left Kansas City about 1866, and in successive years, the eastern starting-point of the caravans moved westward, following the progress of the railway. About fourteen years later, the locomotive thundered into Santa Fe, and broke the spell which, for three centuries, had shut from the modern world, the city of the Holy Faith of Saint FRANCIS.

In closing let me express my thanks for valuable aid in gathering materials for this paper, to my friends of many years, Major HUGH G. BROWN, U. S. A., and Colonel THEODORE S. CASE, of Kansas City, both of whom with me saw something of this trade in 1857, and to Mr. ELIAS BREVOORT, of Santa Fe, who, with great kindness, though a stranger, put at my disposal his intimate knowledge of my subject.

PROFESSIONAL NOTES.

The attention of the readers of the JOURNAL is called to the roster of the cavalry of the National Guard, on the last page of this issue. It has taken no little work to procure this information, and arrange in such manner as to be presentable. It is intended to publish this roster in each issue of the JOURNAL, and keep it corrected up to date.

SOME NOTES ON ENGLISH CAVALRY.

While in Europe last winter, I was, during my stay in London, the guest of the First Life Guards and of the Royal Horse Guards, popularly known as "The Blues," and had a day at Aldershot with the Scots Greys and the Rifles.

The officers of these famous cavalry regiments, apart from the hearty good-fellowship of their hospitality, showed great pleasure in going the rounds of barracks and stables with me, when they found I was keenly interested in everything pertaining to their service, and belonged to Squadron "A," of the New York National Guard.

I found them equally keen in every detail relating to our Regular and National Guard cavalry, such as I was able to give them. Our new drill regulations were of the warmest interest to them in the condensation of commands and the simpler formations, as compared with theirs, which were then undergoing revision, as ours have.

Naturally, I took pride in speaking of Squadron "A," and what it had achieved under Major ROE in the seven years of its existence. It was an unfailing source of surprise to these officers that civilians could be moulded so quickly into cavalrymen, and render such service in Buffalo and Brooklyn, in 1893 and 1895, as have become matters of history, and to be enthusiastic enough to give the time to the hard work required in such regular drilling and campaigning as produced the results which have made the squadron famous.

Apropos of this: In discussing the make-up of the squadron with Lord WOLSELEY, the commander-in-chief, he made the pregnant remark, "Your major is indeed fortunate in such a troop of *gentlemen* for *there* lies the pride of endurance and personal courage. Your

soldier who has the moral backing of his gentleman's breeding, will stand more hardship uncomplainingly, dare more, and accomplish more, than any other."

Regardless of the pessimistic views of so many military critics as to the employment of cavalry in the next great war, there was, among all the officers I met, only the strongest belief in the still greater value of cavalry in the future, and it was impossible to avoid the contagion of their own faith in themselves, and with their magnificent traditions behind them, this can be readily understood.

These three regiments, the First Life Guards, the Royal Horse Guards, and the Royal Scots Greys, are, in the rank and file, splendid bodies of men, and whether it was under the inspiration of the war talk of the day, or simply their usual pleasure in their work for its own sake, there was a cheery and contented air about the men in stables and elsewhere, and a bright alertness of manner, or "smartness," as the word is used in England, that was pleasant to see. In grooming, there seemed a genuine fondness for their animals in the hearty and thorough way it was done, that spoke volumes. Attachment between man and horse is encouraged by the officers in every way, and it is a severe punishment for some dereliction in the care of his horse to take a man's mount from him.

In the First Life Guards and the Royal Horse Guards, the mounts are of the same general class—all Irish bred horses, and, I was amazed to learn, put into service at the age of four years. This was explained to me by the falling off in the numbers bred in late years, there being so little profit in it to the Irish farmer nowadays. What little there was, was going to the middle man, and the fear of their being disposed of to others should the stock be left a year or so longer before purchase by the cavalry.

As a rule, while large, they seemed too heavy in build, and degenerate in breeding, and while Sir S. McDonald Lockhart, commanding the Life Guards, disputed this, I had my views confirmed later, when in Ireland, by getting the facts first hand as to the present indifference of the farmers in breeding from the little profit in it, and the consequent deterioration of the stock in late years. Despite their early use in the service they have powerful hind-quarters, and commenting on this to Sir Simon, he dryly remarked, "So are the hind-quarters of the men." It must be remembered in this connection that the standard of height in the Guards is five feet ten inches, and that I saw the horses bare. In "parade order" the glory of their equipment and clothing covers and adds so much as to completely change the appearance of the horse to a fine charger.

The barracks of both regiments, the First Life Guards at Knightsbridge, and the Royal Horse Guards at Regent's Park, are on the same general plan as regards arrangement of the stables, and are models of ventilation and sanitation. The stalls are unusually roomy, and both stalls and passageways are paved with the rough block of our old street paving in preference to cement or any of the patent devices seen so frequently in private stables. The ceilings

are lofty, and the utter absence of all the usual stable odors seemed to warrant the hanging of the accoutrements on the stall posts.

For sick horses, distant and complete isolation is practiced.

All the leather equipment, as usual in fact throughout the English cavalry, is of "fair," or russet leather, and considering its long life with its handsomer appearance, it is strange the authorities in our country should cling so persistently to the funereal black with its constant necessity of being furbished up with black pastes and consequent ruination of breeches as soon as a man sweats in warm weather work.

In this connection, COLONEL TURNBULL, in command of the Royal Training School of Cavalry in Quebec, showed me a few years ago a fair leather saddle, in perfect condition, that had been in constant use in his troop for twenty-two years, and was still in daily use, and in all that time nothing but soap and water had ever touched it.

Commenting again upon the amount of metal work on the handsome and showy trappings of these commands to be cleaned and polished, apart from the helmets and cuirasses of the men, I was assured that they accomplished it in but little time, and their pride was all sufficient to keep everything up to the mark, and that punishment was seldom for faults on this head.

Here, let me ask, could we not have a little more metal work in our own equipment in having open stirrups issued to us, preferably of gun metal? The present hideous leather booted and clumsy stirrup, growing out of the necessity for protecting the foot against brush and cold on the plains, is thoroughly well adapted to this end, but how it ruins every effort at smartness on parade, and how it encourages a careless seat!

In the present day talk of reducing all that makes the pomp and glitter, the glory of the bright steel and brass of the trappings of the English troops, to blued metal and dun-colored hue, I found it the concensus of opinion that, admitting the practical necessity of this for campaigning, were it to be done in times of peace at home the British soldier would be brought to mutiny, and even the British taxpayer, who loves a show for his money, would rebel against it.

I was particularly struck at the Royal Horse Guards by the *entente cordiale* existing between the officers and the men, each showing an evident pride and esteem in the other. Here the officers are men of title and of high rank, and a more pleasant, jolly, unaffected lot of fellows it would be hard to find. They take great interest individually in the men, and do all they can to make their lives pleasant for them.

At Aldershot I met the Royal Scots Greys, whose horses are all of the color that gives the regiment its name. They have a very good-looking lot of animals, of cleaner build as a class than those of the Guards, and with evidence of better breeding or more careful selection. Their slightly smaller size may have helped to this impression, for the adjutant assured me they were purchased in the

usual way and through the same agencies as the others. The question of giving up this distinctive grey color was then under discussion, it being thought too conspicuous for use in the field with the present long-range arms.

Stationed also at Aldershot was a mounted detachment of the Rifle Brigade, a branch of the service coming into great favor as support for cavalry advance guards. The men are light in build and their mounts are cobs, as these well-built, carefully bred and sturdy little horses are called in England. Their manes are hogged, with the exception of a tuft for the man to seize in mounting, and this tuft being left only three or four inches long, stands erect like a whisk brush and gives these little cobs the most comical appearance.

All the cavalry regiments I have spoken of were exceptionally well drilled, well set up, as the traditional guardsman is, and composed of fine looking men, of unusually good physique, and in the First Life Guards and Royal Horse Guards of the highest standard of height in the army. Their movements were executed with snap and precision and with great evenness. Their seat, with shorter leathers than ours, is natural and good, more closely approximating the seat bare-backed, and they sit lightly and easily in consequence.

It may be of interest to add a note as to the feed allowance according to the latest rules in the English cavalry. There are "stables" three times a day for feeding. In the morning they give from one to two pounds of grain and about twelve pounds of hay; at noon, five pounds of grain and another twelve pounds of hay, and at evening, five pounds of grain and about thirty-five pounds of hay. At the Regent's Park barracks I saw some hay which had just been delivered, of so fine and rich a quality as I never saw equaled here, and they were surprised at my admiration of it, it being nothing out of the common for them.

There is a growing feeling with some of the best veterinarians in Europe that hay should be first fed to the horse instead of the grain, as usual, the suggestion being that the appetite partly sated with the hay, the horse will eat the grain more slowly, and therefore digest it better, retaining it longer in the stomach before sending it onward into the intestines.

It may also be of interest, a question I asked of the riding masters of these regiments, and their replies. Whether they preferred men for the ranks who had known something of horses before enlisting, or nothing. In one case there was a strongly expressed preference for the man who had ridden before and knew something about a horse, and in another an equally strong preference was expressed for the man who had never even seen a horse before he enlisted. These opinions were founded upon individual experience, of which much in proof was given, and it but proves how diametrically opposed expert opinion can be.

H. EDWARDS-FICKEN,
Squadron "A," N. Y. N. G.

THE FIRST YEAR'S EXPERIENCE OF THE DENVER CITY TROOP.

The report of the War Department for 1896 on the organized militia of the United States gives the total number of men as 115,627. Of this number the infantry claims 102,488 and only 4,970 are found in the cavalry. Many populous and wealthy States like Michigan, Indiana and Iowa have no cavalry at all. It is surprising to note that Kentucky, the home of the thoroughbred horse, while supplying over 1,600 infantry is so little interested in cavalry that not a single troop is reported. Some of the States like New Hampshire, South Carolina and Virginia, while maintaining a fair number of men enrolled in the cavalry, do not seem to consider it essential to equip them with modern weapons or require very much drilling from the mounted troops. Cavalry is, of course, an expensive branch of the service to equip and maintain. It demands, and must receive, a vast amount of work from those charged with its development Many good cavalry officers maintain that it requires five years service to carry the average recruit through his training and make of him that proudest and most self-reliant of all creatures—a thoroughly trained cavalryman. With eight hours work a day this would give nearly 15,000 hours instruction. Under the most favorable surroundings in the National Guard we can only hope for from 500 to 1,000 hours of instruction during one enlistment. We are about paralyzed sometimes at the bigness of the subject and the littleness of our means of instruction. Notwithstanding these facts the writer believes that every State in the union could well afford to give this branch of the service the funds necessary for complete equipment and could go out of the way to provide means of instruction. It is not advisable to maintain an unduly large cavalry force. A small one thoroughly equipped and properly trained will give full returns for the money invested. It is a great mistake for National Guard authorities to consider that cavalry can only be useful in the open country or under circumstances where a charge could be made effectual. The infantry can be relieved of a vast amount of patrol duty by the intelligent employment of mounted patrols. Hardly a city in the country but makes use of the principle involved by substituting a few mounted policemen for the large number of foot officers formerly employed.

Ever since the war there has been a tendency to question the efficacy of cavalry in such service as the National Guard is called upon to perform. Until recently in labor troubles no use has been made of the cavalry except to employ them as messengers, a service much better performed by the bicycle squad usually attached to every infantry regiment. During the last disturbance at Pullman some effort was made to employ the Chicago cavalry, but the result seemed to have been a disappointment to all concerned.

Until Troop "A" of New York City made their splendid record in the Brooklyn strike, in 1895, and the incomparable REMINGTON

had advertised the fact to the world, the military authorities would seem to have been justified in the opinion often expressed, that a National Guard cavalry could be of little use except on escort duty.

The military legislation in Colorado during the last decade, illustrates the changing sentiment of those interested in National Guard matters. For some time previous to 1889, there had been in the State three troops of cavalry. The amendments passed in 1889 allowed the continuance of these three troops, but provided that "hereafter no cavalry troops shall be mustered into service. Whenever for cause any troop shall be mustered out the battalion organization shall be discontinued and the remaining troops attached to the regiments of infantry." In 1891 military people had made up their minds that bicycles and electric motors would not entirely supercede horseflesh, and accordingly again amended the military law so that two troops of cavalry should be continued, and attached them to the two regiments of infantry. The law also permitted the maintenance of a signal corps.

Under the provisions of the act of 1891, the Denver City Troop was organized and mustered into the service of the State by the energetic Adjutant-General, C. M. Moses, who, with the Assistant Adjutant-General, B. F. Klee, served as privates in the ranks, that they might by their presence encourage the members and assist in carrying the organization over the rough places in its career. The troop was mustered in some time in December, 1895. During the winter the men were drilled in the school of the soldier, and by spring had become fairly proficient in the foot movements and the manual of carbine and saber. In May mounted exercises were commenced. The riding shool was laid out in an enclosure about 70x250 feet. The expense of obtaining tan bark and sawdust made it impossible to use either. After some experimenting with shavings from planing mills, with beef's hair, and one or two other materials, we selected finely screened sand which was easily obtained from a dry creek running through the city. A layer of ten inches of this sand was spread over the ground and made a very satisfactory cushion for us to fall on. It was pretty heavy work for horses to continue long on the sand, but on the whole we were well satisfied with the result.

The horses purchased by the troop were nearly all unbroken range stock, all of them well bred, some of them highly bred, but every one of them as wild as an antelope.

Up to the time of the Leadville strike in September, the horses were not thoroughly broken. The men were encouraged to do the training themselves, as a means of educating men as well as horses, and the members being nearly all business or professional men, of course had very little time to devote to horse-breaking, except at the regular drills. The officers of the troop had hoped to secure the services of one of the well drilled sergeants of the Second U. S. Cavalry, two troops of which are stationed near Denver, but this plan was frustrated by the spring exercises of the cavalry, requiring

the presence of the men with their commands. Various horse trainers and so-called riding masters from this and other countries were then interviewed. Good teachers were so scarce that the officers finally settled down to digging out of the tactics and kindred works such knowledge as was necessary to develop the correct cavalry seat and train the horses to a fair degree of excellence. The knowledge thus gained was always supplemented and amplified by the kindly and valuable suggestions of our friend, Lieutenant BYRAM, of the First U. S. Cavalry, then acting as military adviser to the Governor. The result of this enforced method of self-education has been so satisfactory that it is doubtful if the troop will ever engage a professional riding master. The effect of the study and teaching has been most excellent, especially among our non-commissioned officers, "*qui discet docet.*" To fit himself for teaching others the non-com. was compelled to do a great deal of collateral reading and spend many hours alone on the longe. The strike at Leadville was declared in June, 1896. Almost from the beginning there was reason to expect serious trouble before a settlement could be reached. In anticipation of possible service for the troop it was deemed wise to hurry through the school of the trooper and commence drill in patrol and escort duty, the school of the squad and skirmish drill, mounted and dismounted. Every possible effort was made in the time allowed to accustom the horses to the use of firearms. So far as the time permitted the men were instructed in the use of the saber. Throughout the history of the troop considerable attention has been given to fencing with foils, single stick exercise mounted and dismounted, and broad sword and saber exercise. While no expert swordsman has been developed, yet the command is familiar with the saber and rely upon it as a weapon. In service the men preferred to carry it, feeling confidence in its use.

July 3d a portion of the troop took a short practice march of thirty-five miles, going into camp in the foothills near Denver. On the march, advance guard drill and skirmish drill were practiced. Camp was reached about 11 P. M., and the usual camp duties performed. The next day, with the aid of twenty or thirty ranchmen, an excellent dismounted skirmish drill with blank cartridges was held—one party attacking and another defending a high bluff, well wooded and very rocky. In the midst of the exercises a dispatch received from the Adjutant-General recalled the troop to Denver, where we arrived about midnight, having been absent twenty-nine hours and marched seventy miles. The recall was due to a false alarm from Leadville, where the situation remained unchanged for two months longer. Pending the final outbreak the troop was given an opportunity to complete its equipment and go on with the drill. The opportunity was improved to the utmost by officers and men. Our equipment was of course similar to that of the regular cavalry, which in turn has been evolved by many years of rough service in the West. Some details we were obliged to change for economy's sake, and in some parts of the equipment we were led by the nature of our service to make slight alterations. Our saddle,

bridle and blankets were those used in the regular service, with the exception of the bit, which was a hand-forged bit, with straight side-bar and low port. Theoretically the bits seemed all right, and conformed to nearly all of the requirements laid down in CARTER'S work. Practically they were a great nuisance. The horses frequently tossed them upside down, and some amusing and interesting exhibitions of bolting occurred as a result of the loss of control of the horses. Various devices were resorted to for overcoming this defect, the most successful perhaps being to run a string from the rein-ring on one side under the chin-strap to the cheek-strap ring on the other side. Although supposed to be made of the best material, the bits were continually breaking. At one time six out of forty-two on hand were unfit for use, having broken for no assignable reason. Officers and men united in condemning the bit as unsafe.

The carbine was a venerable piece of mechanism, which had been in the hands of various State organizations for twenty years. Most of the guns showed serious signs of neglect, as they had evidently had but indifferent care. The locks, hammers and firing-pins were in fair condition, but the stocks and barrels were badly battered. The rifling was much worn and rusty in many of the guns. All of the guns had been in the hands of the gunsmith just previous to the campaign, and had been put in as serviceable condition as possible. The sights were the old leaf sight without wind gauges, and the front sights on many of the guns were bruised and out of shape. Notwithstanding these defects, the carbine issued us did good service; for it was the reliable Springfield weapon, and we are among those who believe that no better gun has as yet been placed in the hands of the troops. Five men belonging to the Leadville troop one day made a score of 116 out of a possible 125 at 200 yards, off hand, the regulation "A" target being used. Each man used the carbine assigned him, and no effort was made to select the best shots in the troop. The score is given as an evidence of the accuracy of the weapon after having been over twenty years in service, where no expert and very little ordinary care had ever been given the piece. It was customary for us when acting as escort for officers or guarding "scabs," to ride at "advance carbine." Later in the campaign some of the men preferred to carry at night "sawed off" shot guns loaded with coarse buckshot. The men killed by the defenders of the Coronado and Emmett mines, and later picked up and turned over to the authorities, were nearly all killed by buckshot. At nearly all of the mines shotguns for night duties were considered an essential part of the armament. The cavalry profited by the experience of the infantry, and the night squads usually carried a couple of shotguns. The carbines were all right for day duty, dismounted, and enough target practice was indulged in to give the men confidence in their use.

Just prior to the campaign the troop had been furnished with the regulation 38-calibre navy Colt's revolver, with six-inch barrel. We have no criticism to make on the mechanism of the gun, with

one possible exception. Out of fifty-two pistols issued we had four, or a trifle under eight per cent. disabled by the breaking of the cylinder lock-bolt spring. After our return from Leadville we fired between five and six thousand rounds of ammunition and broke two more springs. No other part of the revolver gave out, and we feel justified in recommending that some change should be made in the mechanism of the piece which would strengthen an evidently weak part. The accuracy of the weapon was unquestioned. The holster was modeled after that in use in the army and is an abomination. Some other method should be adopted for carrying the weapon. It was almost impossible to draw the pistol with one hand, and what the trooper is to do with the piece after discharging it, no one seems to know. We all felt that the ring and lanyard should be provided, so that after discharging the gun the saber might be drawn without an instant's loss of time. The practice at mounted shooting showed that even the most expert men lost a moment of most valuable time in replacing the pistol prior to drawing the saber. Usually the horse would carry the rider over many yards of ground before the transfer could be made. All over the West, where men are continually shooting big game, and therefore are competent to express an opinion, there is a decided preference for large calibre weapons. We invariably prefer stopping property to penetration. Experience has taught us the value of shock in producing results. For this reason the troopers, nearly all of whom have hunted from boyhood, did not place implicit reliance on their new 38-calibre weapon. Many of the men carried in addition to their regular troop pistols, a 44 or 45-calibre; this with the aditional ammunition required and the regular accoutrements worn made perambulating arsenals out of some of the men.

It has always been a matter of surprise to the writer that some cavalry officers in the U. S. army are ready to abandon the saber except when carried on occasions of ceremony. We confess that when cavalry is called upon to dismount and fight as infantry, the old method of carrying a saber would make almost any one wish to discard it altogether, but with it attached to the saddle where it belongs on service, that objection is removed. Whatever may be the opinion in the regular army, based on the experience of regular army service, our own convictions are well established. We are positive that for such service as the National Guard has to perform no weapon can take the place of the saber. Until our men can be taught to shoot mounted very much better than they do now we are not sure but that the saber is as deadly a weapon as the pistol. In our hands it was used as a policeman's club. In such duty as we had to perform—dispersing bunches of men, clearing the streets, or holding back crowds of strikers, we found it immensely useful to have a weapon we could employ mildly without killing any one. In another campaign we should rely upon it more than in the last.

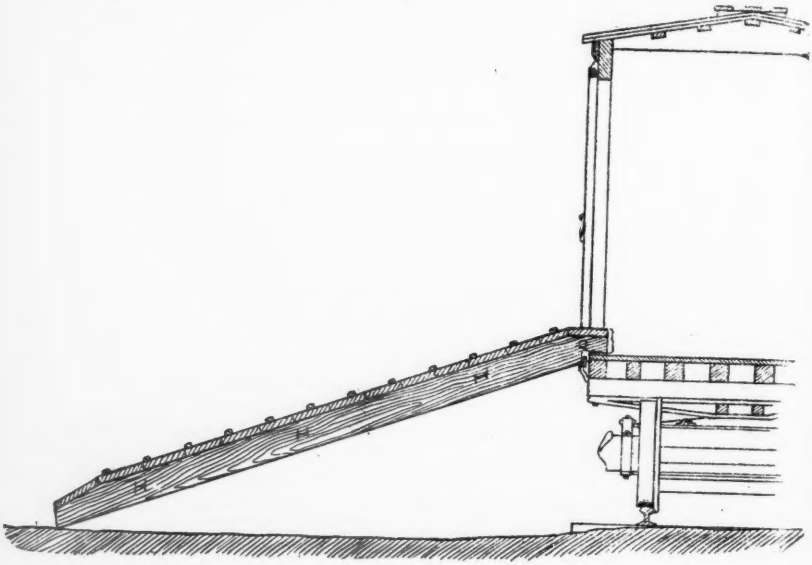
As previously mentioned the call to Leadville was not unexpected, and thus opportunity was given to prepare for the trip so far as our financial condition allowed. Not having money enough

to purchase saddle-bags, we were provided with the infantry canvas haversacks, which we slung to the shelter tent roll at the rear of the saddle. We supplied our troop quartermaster with such necessary articles as would be required for independent action in the field. In our troop wagon we had frying pans, coffee boilers, camp kettles, pails, blacksmith tools, a few extra horse shoes, nails, hammers, saws, hatchets and axes. Wire nippers sufficiently strong to cut barbed wire fences were supplied to all the non-commissioned officers. The first sergeant's box contained stationery and ink, blank reports, and the usual record books of the troop. No baggage of any kind was allowed either officers or men, except what each trooper carried on his horse. During the summer the men were instructed in packing the saddle and the following instructions were posted in the armory: "Until further orders each member of the Denver City Troop will place in his locker and leave there the following articles: One suit underwear, one pair socks, two handkerchiefs, tooth brush, matches in tin box, comb, writing material, currycomb and brush, soap, two towels. In case the troop is ordered into service the articles will be packed as follows: In the bedblanket: Underwear, socks and handkerchiefs. In the haversack: Comb, matches, tooth brush, writing material, soap, towel, curry comb and brush."

Anticipating plenty of cold and stormy weather, the men were advised to carry rubber coats and chaps.

Just before being ordered on duty we devised, and the Adjutant General generously provided us with a shelter tent which proved to be the most valuable part of our equipment. As a tent we consider it inferior to the regular issue, but for any other one of the multitude of uses to which we put the article we thought it superior. It was a sheet 7x6 feet in size, made of twenty-two ounce duck. Our friends in the regular service had advised us that the regulation tent of the army did not shed water very well, and we accordingly bought heavy ducking. We had rings instead of buttons placed one foot apart around the entire edge. These rings were of brass, sewed in, and were three-quarters of an inch in diameter, to allow the use of the lariat in fastening the edges together. This method of fastening is not so neat as the buttons, nor does it make quite so good a joint, but it is serviceable. Not one of the 1,440 holes tore out, which is certainly a pretty good record. The heavy canvas containing as it did the bed blanket and small articles, made a bulky roll, and this was the only objection we had to it. It was absolutely impervious to water, and furnished dry beds for the men. It was our custom while on outpost duty for two men to place one tent and one double blanket on the ground and then use the other blanket and tent for cover. In camp the tents were used at night throughout the campaign as horse blankets, and carried the horses safely through some violent storms of rain and snow. No shelter was provided for the horses until we had been in camp nearly two months. The hospital squad experimented with the tent, using it successfully as a hand litter and as a travois. On one occasion by

stringing four sheets together they very promptly erected an awning over a trooper who had become exhausted. Until the quartermaster issued us mattresses the sheets were often used in that manner by doubling one or running two together and stuffing with hay. We think the tent can be improved by adding the end flaps and providing buttons for one-half of the fastenings. Our lariat was a four-ply manilla rope especially made for cowboy use, and was the best rope we ever bought. We carried the lariat coiled and did not use the pin. Shortly before leaving Denver the writer was requested to devise a ramp suitable for detraining at any point on the line, either in the mountains or on the plains. After inspecting the various styles of stock cars in this vicinity and submitting the plans to Lieutenant BYRAM, the ramp was built and was so admirably adapted to its purpose that it is preserved and laid away for future use. We carried it on top of one of the stock cars and lashed it into place with a lariat. It all goes in one piece, and although heavy can be put in place in a moment's time by detailing men enough to handle it easily. A simple drawing and description is appended.



The bed pieces consisted of three fourteen foot 2″x6″. The floor was of two-inch plank. Bits of inch stuff were nailed on the floor at intervals of about one foot to prevent slipping. Strong staples were inserted at the car end of the bed pieces, through which lariats were passed in securing the ramp. Three staples were also placed

on each side, through which uprights were to be placed if it was desired to stretch a rope to "fence in" the ramp. A notch was cut in the upper end to allow the ramp to fit the car floor more closely.

Our quarters at the armory are somewhat contracted, but so far as possible each man's field equipment was placed by itself to be issued to him as he reported at the armory in case of a call for service. Saddles, blankets, and bridles are left with the horses at the various stables where the horses are boarded or owned. The order to mobilize reached the armory at 3:05 A. M. on the 21st of September. The members were notified by messengers mounted on bicycles. Three of the men, including the troop quartermaster reside over seven miles from the armory, two more were in a neighboring city, and the balance were within a radius of about two miles from the armory.

We were obliged to make requisition for nine livery horses, which were promptly furnished. We also completely uniformed and equipped five recruits recently joined. Our consignment of pistols had been received but a few days previously and were issued with the pistol and carbine ammunition after the troop was formed dismounted. Twenty rounds each of carbine and pistol cartridges were given each man. At 8:30 the troop left the armory, taking breakfast at a restaurant before entraining. We were very much disappointed at the length of time required for us to get away after receiving the order, and believe it can be reduced one-half another time by a more compact arrangement of each man's equipment and better previous instruction in packing. Nearly all the time was consumed in issuing and packing the equipment, as every man had reported by 5:30, and twenty minutes at the outside should have sufficed for mounting the troop after the arrival of the men. However, the experience showed us a weak point in our acquirements and the defect was remedied after a few days in camp. After the return to Denver very much better arrangements for storing the field equipment were devised, and the mobilization will be much quicker next time. All but three members reported; two of them were out of town and came to Leadville at once. Transportation to Leadville was by railroad, and the infantry trains preceded that of the cavalry and artillery. The latter train was a mixed one, being composed of an antiquated style of cattle car for the horses, four box cars for the Quartermaster Department, an open car for the artillery, and a passenger coach for the men. Very little difficulty was experienced in entraining, although many of the horses had never been in a car before. The stock was watered just before going on board. We left Denver at 11:20 A. M. on the 21st, and detrained in Leadville in perfect condition between 4 and 5 A. M. of the 22d. In addition to our own horses, we had on the train the horses of the staff and artillery, making in all 105 head. We placed twenty-one head in each car. The writer was in command of the train. Experienced men were placed in charge of the horses, and a careful inspection was made at each stop the train made. One large horse required tying by lariat to prevent kicking and biting. The artillery and staff horses were nearly all obtained from livery

stables and were for the most part very good stock. The troop horses were nearly all owned by the individual troopers and were generally well bred and handsome animals. During the first two months of the campaign we had no stables and the horses were picketed behind a high fence. During these two months the weather was usually fine, but there were days and nights of rain or snow. About the 1st of December the quartermaster secured some lumber, and sheds open to the south were built, with separate stalls and feed boxes. The open side we closed at night with old canvas tents, leaving the shed open by day. Some of the service at Leadville was extremely hard on the horses. We frequently patrolled the hills, over the roughest of ground, up to 12,000 feet altitude. The mountain trails are not bad, but they often could not be used. In spite of the greatest watchfulness, we occasionally had a sore back to deal with, although every horse was kept in the service. New horses brought on the line would occasionally develop scratches, but no bad case was reported. About the middle of October all but a dozen of the Denver City Troop and one officer were withdrawn, and twenty infantrymen from one of the Leadville companies were transferred into the cavalry and continued as cavalry until the end of the campaign. These Leadville men were all young business and professional men, of a high order of intelligence, and very soon acquired the vim and snap so essential to good cavalry. Some of the horses they introduced into the troop required a great deal of training, but being used to the altitude and tough, they were excellent mounts. We found early in the campaign that "valley" horses like "valley" men were short of wind when trying to run at an altitude of two miles. It required several weeks' residence to accustom the stock to the change. After the cold weather set in it became necessary to sharpen the horses' shoes very frequently. The mountain trails are so very steep and often so rough and icy that unless a horse is sharp shod the rider had much better go on foot. Those horses constantly on night duty were sometimes sharpened every day. The troop blacksmith was assisted by a hired blacksmith and by details from the troop. We were very fortunate in the way of injuries to horses. A few were cut by breaking through the ice, a few were temporarily lame from strains, one had a front hoof nearly torn off at the corona by catching it in the railroad track, but no serious case of injury or sickness occurred during the campaign. The problem of feed was an interesting one. At first, while the horses ate hay on the picket line and grain from the nose bag, the feed ration was excessive. Most ranchmen and private owners feed too much hay, and it was difficult to restrain the men from too indulgent attention to their stock. The writer found, after a temporary absence from camp, the regular issue of hay per horse at twenty-two pounds per day. This was reduced gradually to fourteen pounds. We never fed to the average horse more than ten pounds of oats and were constantly ahead on our issue on both hay and grain. The stock was always in prime condition, the horses themselves were nearly all accustomed to hav-

ing hay before them continually and we therefore found it wise to feed rather more frequently than the regulations called for. Oats were fed at 7, 11:30, and 5. Hay at morning stables, 8:45 A. M., 6 P. M., and 10 P. M. The service we were on was neither garrison duty, active campaign, or camp of instruction, but a decided and disagreeable mixture of all three. In inclement weather nearly all the horses would sometimes be left in stables for several days and then suddenly a scare would come, the cavalry would be called for, and the stock would have two or three days' work over villianous trails and in bitter cold weather. Drilling was carried on perpetually throughout the service whenever the weather would permit, and the stock was not overworked. We were fortunate in being allowed three or four extra mounts at all times, so that a substitute could be used whenever for any reason a horse was temporarily disabled.

The uniform of the men was the regulation U. S. campaign uniform and with one or two modifications was admirably adapted to the service in mild weather. Storms are frequent and sudden in the mountains and the men should be provided with some sort of rubber pouch. No squad was allowed to leave camp for duty without overcoats, for at 10,000 altitude the temperature can and does make wild tumbles of 30 and 50 degrees, and storms come almost without warning. Our dismounted service over the sharp rocks, wore out our town shoes in two or three days, and we were provided with the regular mountain lace boots so much worn in the Rockies, and found them very serviceable, as they were thick soled and strong enough to stand the service. They are made to fit the leg closely by lacing at the instep, and so take the place of the campaign leggins which we found a nuisance while riding through the brush. The leggins may be all right for the open country or for city work, but they were never meant for rough service. We had had some little experience with them in the scrub-oak of the foothills, and were not surprised to see them tear off whenever any fast riding was attempted among the second growth pine in the mountain. After winter set in our feet were most comfortable in calfskin shoes or boots, with heavy and high arctic shoes. Some of the men while mounted used the huge German socks drawn on over boots and legs. Every trooper who could afford a pair bought "chaps." They are a great protection to a mounted man, and might well be issued to such forces as are ordered into a timbered country or are on service in very cold weather. The heavy underclothes and sweaters furnished us we believe were the cause of the wonderful health of the command. Every man was provided with two suits of underclothes and two sweaters, so that when coming in wet from a detail he could change his clothing. It was a very simple matter for the commanding officer of each company or troop to see that the various details on duty in wet weather changed clothing immediately after caring for their horses. Colds and serious lung complaints were almost unknown.

The headgear used by the men was at first the regulation cam-

paign hat, supplanted later by a cheap cap, with a roll to cover the ears. A few of the men bought fur caps and several received the ugly looking but very comfortable muskrat caps of the regulars. We were very early given a heavy sheepskin glove, with wool on the outside, which protected our hands perfectly. Altogether a cavalry patrol presented a rather motley appearance, but campaigning at 10,000 feet altitude, with temperature from forty degrees above to twenty degrees below, is business and not pleasure. The fact that only one case of pneumonia developed and no serious accident and no fatality occurred among the eighty-seven men on duty, is evidence sufficient that the health and comfort of the men were well cared for. The food served the men and the forage provided for the horses were the best money could buy. We had constantly on our tables the best of meats and vegetables in abundance. The troop taxed its members a couple of dollars per month each and added to the regular issue fresh milk (a scarce article in that district) and not a few delicacies, such as fruit, celery and pastry. The camp commander allowed us to purchase lumber and build a very comfortable eating house, which was warmed by a Sibley stove.* As mentioned above, cavalry was a new arm of the service for Colorado. It is true that there had always been two or three troops on the rolls of the Adjutant General, but partly for lack of equipment and partly for lack of horses no serious effort was ever made in this State to drill a troop well enough to employ them in the service until the winter of 1895–6. Very few of the originators of the Denver City Troop had much idea of the great value of this branch of the service, and indeed not many really expected to see any service more difficult than parading on occasions of public demonstrations. On account of the ignorance prevailing regarding the use of mounted troops, we saw some peculiar service at Leadville. There were in the district usually about 600 soldiers. The territory under observation was extensive and the property valuation immensely great. For several weeks after the opening of the campaign nearly every soldier in camp was on duty at least every other night. The cavalry took their full share of this work. Small day patrols were maintained almost constantly. Night patrols were resorted to in the latter part of the campaign, and with most excellent results. Small parties of cavalry were frequently sent to investigate rumored depots of supplies for the strikers, or to search abandoned mines and mill properties for collections of arms. Some of these details carried us into rough country—one trip going above timber line in a snow storm. The territory guarded was about fifteen miles long and five to ten wide, Leadville, with per-

* Being inexperienced we had no idea that a man could enjoy "all the comforts of home" in a Sibley tent. The State provided enough of these tents so that there was no overcrowding. As the cold weather came on the men bought lumber, laid floors, and built bunks to sleep in. In the cavalry quarters in winter there were never more than six or seven men in a tent. After the stables were built, the saddles and horse equipments were moved from the tents to the stables and this left plenty of room in the tents. We were given plenty of pine wood for heating. It usually required the assiduous attention of one man as stoker to supply the stove with wood, still the tents were always comfortable. Various racks and hooks were devised to hold cooking utensils against the conical stoves, and the men enjoyed doing a little private cooking after returning from night duty.

haps 15,000 inhabitants, being near the center of the district. While we were there the lawyers could not agree, nor have they ever settled for us how much authority we had, or whether we had any right to disarm strikers, or secure weapons, or search buildings, or interfere with traffic. It made our task a delicate one, for we frequently received distinct orders to do all these things, and the orders were carried out.

Three different parties of non-union men were imported from Missouri to work in the mines. On each occasion the cavalry patrolled the railroad track for four or five miles out of the city and prevented any one from approaching or crossing the track until after the train passed, bearing the miners and their guards. The grade into Leadville is heavy and trains run slowly. By speeding the horses the troop usually reached the station in time to furnish point and flankers for the column guarding the workmen and escorting them to the mine. During January a reduction of the force occurred. Detachments of soldiers were relieved from duty from time to time, until only a squad of cavalry under an officer of the Leadville troop and a provost guard of infantry remained. Early in March the strike was declared off and the troops were promptly withdrawn.

Although the proper function of cavalry was little understood at the beginning of the campaign of five months' duration, the valuable service rendered by the troop so impressed every one who had an opportunity to judge of the work, that a clause was inserted in the military bill then before the Legislature authorizing the formation of a squadron of four troops, and by the appointment of a major putting the cavalry into an organization by itself instead of attaching it as before to the regiments of infantry. The campaign was a most valuable one in the way of instruction. Perhaps the most important lesson learned being the necessity of training our horses more thoroughly. The men were taught confidence in themselves and reliance on the organization, and although the continued absence from business was a severe trial to many of the members of the troop, we lost but very few men after the service was over, and their places were promptly filled by the enlistment of equally good material.

JOHN CHASE,
Lieutenant, N. G. C.

THE HUMAN ANIMAL IN BATTLE.

In the March number of the JOURNAL was published a resumé of Mr. H. W. WILSON's article entitled, "The Human Animal in Battle," a very important military subject. As is suggested by the title, the central thought or main point is that of *courage*. This quality or attribute has been defined by many great soldiers, and it is said to be incited by about as many different causes. To those who are loath to take the sordid view of the matter, as it is usually presented, as for instance in the "Red Badge of Courage," by STEPHEN CRANE,

the following extract from the "Matabele Campaign," by Colonel R. S. S. BADEN-POWELL, may prove of interest:

"I have seen in the *Fortnightly* an article on 'The Human Animal in Battle.'

"It is interesting, but it doesn't exactly tally with the impressions gleaned from experiences here. Allowance must be made, of course, for individual constitutions, but the author seems to imply that for the generality, 'courage is a powerful exercise of will to overcome the more natural tendency to run away'; but it seems to me to be an exercise that is put into practice very promptly and automatically by some people.

"He talks of the soldier as going into a fight with his mind full of the question as to whether he is going to be killed, and if so—why? That he then discovers that fighting is not pleasure, it is not sport; he merely gets dazed, and all his senses are blurred.

"As far as I know, men going into action are, as a rule, thinking of anything but getting killed, and they are anything but dazed. If they happen to think at all about anybody being killed, they do so as in ordinary life—and death: they reckon on their neighbors dying, but not on themselves.

"There is naturally a sort of excitement which takes possession of one, and which, I think, works on you to the same extent as a couple of glasses of champagne. You forget all fatigue, and your wits are more than usually sharpened.

"This brightening of the wits is similar to that which occurs in the case of an actor on the stage. Ask him in the wings, just before he goes on, what are his next few lines, and he probably could not tell you: he steps before the footlights, and at that same moment his mind, I suppose, concentrates itself on the matter in hand, the lines come to him without effort of memory, and his wits are about him to the extent that if one of the 'gods' interrupts with a bit of chaff, the actor can rap back a repartee at him that would take him a month to work out in cold blood. In the same way, one's wits brighten in a fight: one seems to see clearly in every direction at once, to grasp what the enemy is at, and also what is wanted on one's own side, before, around and behind one. The mind is clear and not confused, and is buoyed with a feeling of elation and cheery excitement, but with a cruel under-current, close below the surface, which the Kaffirs so aptly describe as 'seeing red.'

"A little instance in a fight two days ago will illustrate my meaning. A trooper coming back from the firing line with a message to the rear, saw, as he passed, one of our Cape boys skulking under cover behind a rock. 'For'ard on, Alexander!' he shouted cheerily, and picked up a stone to playfully enforce his command. At this moment a Matabele in a cave close by fired and just missed him; he merely altered the direction and the force of his throw, and hurled the stone hard at the cave instead of at the Cape boy. Then with eager haste, mad with rage, and swearing volubly, he dashed up the rocks to 'give the nigger snuff.'

"This sudden change from cheery light-heartedness to blood-thirsting rage is one of the peculiarities of the mind during a fight.

"Another curious statement in the article is that in action fear plays some game with one's secretion of saliva, and that an intense thirst results. Speaking for myself, I have been in as great a funk as any man of my weight and years; but I do not recollect any particular thirst connected with it. I have for my part never seen much difference between the thirst of the battle-field and that of the polo-field, the cricket-field, or any other field, except perhaps one, the pig-sticking field, which certainly can produce a thirst peculiarly its own, and one which transcends that of any other pursuit—but even that thirst is not the result of fear."

THE ARMY BUMMER.

The Bummer bore upon his person the proprietary trade mark of the Great United States. He was a creation of the American Eagle, and he became a necessitous necessity as soon as his creator was advised of his boundless per capita of utility and gall. He never felt the gyves of discipline. If rank compelled a salute, a vicious mental exclamation, was lymph for such lupus.

No crowned head would have tolerated him for a moment. There was about him the potency and inclination to knock the underpinning from a throne, or jump the claim and sequester the crown jewels of any satrap who occupied that kind of an upholstered seat. The interest on his capitalized assurance would have been ample to have paid the entire principal of the national debt. He was a larger book of strategy than DE JOMINI ever wrote, and beyond doubt he was the only personage of whom WILLIAM TECUMSEH ever had cause to be envious or afraid. The objective point became his while the army was busy in preparation for its capture; and it laggardly responded to his request to hurry up and help him hold it.

Had he been a Crusader, the Holy City would have been his meat; and his descendants to-day would have borne the hen lyant or the razor back rampant on their ennobled escutcheons.

If the genus homo of whom I am permitted to speak, could have been projected into the Russian campaign, as MARK TWAIN did the Yank into the Court and times of KING ARTHUR, instead of Death on horseback pursuing the French army a-foot back to France, the return from that GOD-forsaken country would have been a summer picnic; and, far into the next autumn, the road from the Kremlin to Champs Elysee, would have been littered with chicken feathers and ham rinds.

When the government, and the great liberty loving people behind it, were in agony over the outcome, and while the national gloom was as though the empty bottles of the night had been upturned and emptied into Chaos, he heard the roosters crow for morning and gave the North backbone and faith; when they waited in dumb despondency for the dread Sphinx to answer, whether the government of the people, by the people and for the people, should be wiped from the face of the earth, as some day a Kansas cyclone will serve the sixteen story buildings of Chicago, he punctured the Confederacy and knew it to be an apple of the Dead Sea.

He wired SHERMAN to come and not be afraid, as there was nothing but a handful of Georgia Malish of odd sizes and last year's vintage, and three proclamations of BRAGG intervening between him and the sea.

He was a wise man in his day and army corps. He always hunted up a Baptist settlement for a convenient place to ford a river. He was then sure of a ripple and rock bottom. He was all things to all women. Notwithstanding he had a family at home, he wooed the Southern maiden while a number of loving letters

from his wife remained secure in his pocket. He told her the story old as time and sweet as mortality; one which pulses with the same rhythm and warmth beneath the midnight sun and Labrador sky as it does amid all the opulence of noon's eternal flowers. He asseverated to her, that it was under a dire compulsion he dared not name, that he took service in the Union army; that scorning proffers of high command in both the army and navy, he took the humblest position he could find; that although GRANT was his uncle, he had not the heart to sanction the General's course; he prophesied a victory to the Southern cause and hinted at reclamation from the Northern purse for all the South had suffered or borne or lost; he declared that upon the conclusion of the vulgar and unconstitutional rapine and pillage of the Northern horde, he intended to return and invest his entire private fortune in that very vicinity.

And then, with his arms entangling her, "he poured into the porches" of her ears the "leprous distillment" besides which CLAUDE MELNOTTE's harangue to the trusting PAULINE was as contractor's sow belly to Hesperian fruit. And all the while, his eyes wandered the landscape o'er, alert to discover the lair of the heirlooms and the abode of the buttermilk and sausage.

He was a statistician who used up the resources of the country in compiling the returns.

As a financier, he inflated the volume of Confederate currency by an issue, which, for letter press, was complimentary to the Philadelphia concern that got it up, and much of which, our British brethren hold and hope some day for the United States to assume and pay.

As the deeps of atmosphere envelope the earth and protect it from stellar shot and hot, whizzing, rotten, planetary camp kettles, so harm comes not to any mortal, as the tenuous nebula around the comet's head and hundred miles of tail, so, he surrounded the army and pervaded the country, a pillar of cloud by day and a pillar of fire by night, while the great sinuous, crawling army bisected the Confederacy with a frolic and tore it in two with a joke. It was the first great march the Salvation Army ever made.

The bummer's conscience was but an annex to his appetite. He was the very inspiration and genius of hunger. Reason, reputation and risk were hand maidens that waited on stomach. Anatomically, he was an Octopus of Abdomen, whose tentacles reached every hen roost and pig sty. His teeth were sand papered and edged for nubbing, pain killer, goose liver, red hair oil and corn pone.

Par excellence, the American Knight; whose lance was always in poise for the unwary hog, and who victoriously wrestled the trophies, in his joust and tourney with unsophisticated mutton. He may have been unshaven, hungry and dirty, but when it comes to loyalty to the cause he was a vestal virgin, that had no use for a seive; and when it come to disguising his purpose, by the use of chin music, he was a SOCRATES.

Alas, and ah me! We gaze backward to at last linger on a dream. We invoke the past, and only a specter stalks across the memory to-night! The unreal flesh has taken on the invisible livery that mantles a soul in Paradise! He rides his flea-bitten mule no more! His canteen lies corroded and empty! His gastric juice has taken vacation and he assimilates his victuals no longer! The great nerve that touched the brain of an army's intelligence and activity has departed!

Where he may be, I cannot tell! Full well I know, his valor threads the shining meshes of the flag. There is an echo of him in the mighty woods as the birds sing songs of peace in the depths! Wherever the glow touches the hill tops it tinges his name! There is a laughter of streams that ripple to his memory and a psalm of oceans that anthems his praise! There was victory and home again, instead of petty provinces, incongruous, divergent and soon to be alien! From ocean to its sister sea, is one land and one flag, while, under the Divine benignities, he fought for and so well helped to accomplish!

Where he may be, I cannot tell. If, still, he dance the crazy maze called life, I say, GOD bless him! And, if he is a foot pedestrian on the streets of the New Jerusalem, he has, long ere this, ascertained how well the golden cobble stones are anchored down and how firm the matchless gems are set and grounded in its alabaster walls!

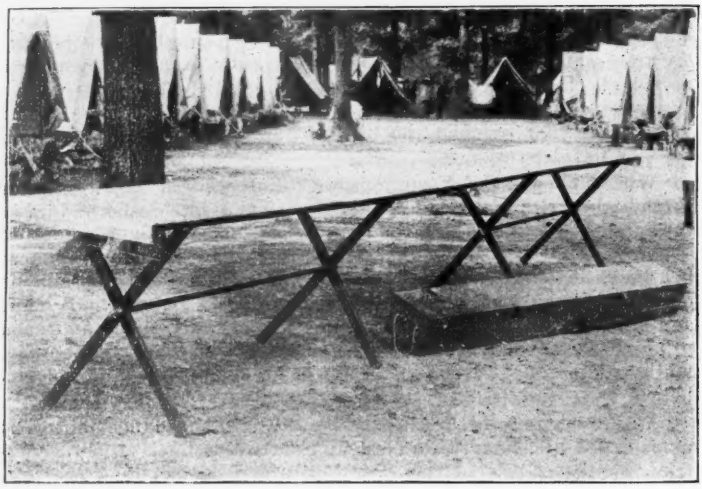
With him has vanished the marching men, the horse, the rider, the Dahlgren, "the thunder of the captains and the shouting," the lustrous and shining banners of victory, "the pride, pomp and circumstance of glorious war"—all are gone forever!

J. G. WATERS,
Captain.

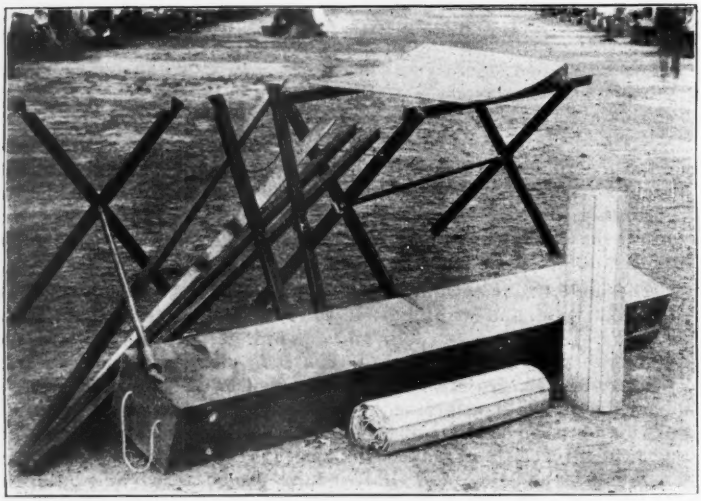
CAMP TABLE.

At the request of Lieutenant REEVES, I had taken at Camp Lincoln, Springfield, Illinois, two photographs of our camp table, which he said he would like to send to the Association, and I mail them to you to-day. If you think they are of enough interest I will send you all the correct measurements, so that you will have a clearer understanding of the use of the table.

The table, when set up, is twenty-one feet long and a little over three feet wide, and will admit of thirty-six men standing at it at one time. It takes about four and one-half minutes to set the table up and about a minute less to take it to pieces and put in a box. The box at the present time is seven feet long, a foot high and a foot wide (inside measurement) and is very easily carried when an escort wagon is used, one of which I had made for my troop about a year ago. I am now improving the table so that it will go into a box about four and one-half feet long to about two and one-half feet high, making it more compact in size.



The tops of the table, you will notice, are in three sections, and made of hard wood, such as is used in parquette flooring, glued on to a light canvas or duck, the sections being seven feet in length.



I assure you that the table was a decided luxury during our trip from Bloomington to Springfield, we using a "Buzzacott range" for cooking. This table is an idea of my own, and was made by two members of my troop.

M. L. C. FUNKHEUSER,
Captain First Cavalry, Ill. N. G.

REPRINTS AND TRANSLATIONS.

THE FRENCH CAVALRY, 1870.

The choice of a subject having been left to myself, I naturally have selected one connected with my own arm of the profession, to which in a measure, as members of the active militia of Canada, we all belong, and with which particular arm I have been for so many years actively connected.

Two years ago I had the honor of giving a lecture at the Canadian Military Institute in Toronto upon the value of the cavalry arm in general that caused some to think that I wished it to be believed that good cavalry were invincible and always successful, so to-night I have chosen for my subject "The French Cavalry, 1870, with its lessons for Canadians," and obtain the facts which I am about to bring to your notice connected with that disastrous campaign from the account given thereof by Lieutenant-Colonel BONIE, Eleventh Dragoons, and published by him in Paris in 1871.

I have yet another reason for choosing this subject, inasmuch as I took a very deep interest in the French cavalry, because in 1866 when I was attached to the cavalry depot at Canterbury and heard of the probability of a Fenian raid, I came out in the month of March by way of New York, and was immediately appointed intelligence officer to Colonel MACDOUGAL, Adjutant-General. The information which I collected and brought in to headquarters here in Montreal from the other side of the frontier was considered of such importance that I was rewarded with having the letter F printed before my name in the militia list, so that I can claim fellowship with the newly-formed veteran association of Montreal.

The Fenian War being over, I returned to Europe in 1867 at the suggestion of the late Sir GEORGE CARTIER, Minister of Militia, to visit the French cavalry in an official capacity, seeking instruction that might be useful in Canada, and was duly accredited to the French military authorities, through the kind influence of the British ambassador in Paris, Lord LYONS.

With these preliminary observations I will now proceed with the following:

INTRODUCTION.

You have all lately had the opportunity of hearing or reading the very valuable lecture by Captain LEE, R. A., on "Mobilization," which takes such a comprehensive grasp of the subject, and explains so fully and clearly the necessity of a completely perfect organization of every little detail required; and his opening chapter upon the general state of the French army is so true to life that it will be sufficient for me to say that at the breaking out of the war the French cavalry were in no way prepared.

For some years previous the impression was gaining ground that modern warfare and improved firearms had sealed the fate of this arm, while the committee that had been appointed to consider the question reported and decided that the regulations of 1829 were perfect in 1869.

The order, however, to "mobilize" had been given, and as there were no reserves of horses, a portion of the effective strength only four-year-old remounts, no supplies of mess tins, kettles or camp necessaries, all was confusion, marching and countermarching incessant, and sending vain applications to Paris for supplies.

Thus they marched to meet the enemy and hoped for the best.

FIRST PART.

Arrived on the frontier, the French cavalry commenced operations upon exterior lines, while the Prussians covered their whole front and flanks with an impenetrable cloud of cavalry scouts, and attacked with all the advantage of interior lines; also a perfect knowledge of the country, which the excellent maps in their hands gave them; while the French cavalry had no maps.

The Germans, therefore, at once commenced to use their cavalry with unparalleled audacity, showing unlimited confidence in the dash of their men, and the staying power of their horses. So that to the ubiquitous Uhlan, which was the term that came to be applied to the Prussian cavalry without distinction by most correspondents during the war, in a great measure the general success of the campaign is largely due.

The French saw this, to them, new method of handling cavalry with astonishment, and tried to follow the example set them, but failed from want of special training—their theory having been that cavalry should be sheltered in masses behind inequalities of ground until required, then to be launched against the enemy at the decisive moment; and so, while their brilliant courage throughout the campaign saved the honor of their arm, it was wasted in useless charges, the men frequently riding to what they knew was instant death—the stern reality of practice proving that shells searched out every nook, and regiments were annihilated before they could close with infantry in the charge.

BATTLE OF WISSEMBOURG.

The ball opened—if I may be permitted to use so graceful an expression in connection with such grim work as war, and I also desire to remind you that I confide myself throughout this lecture solely to the action of the cavalry, taking no account of the three arms—with the battle of Wissembourg, where the Second Division, under the command of General DOUAI, were encamped. The cavalry occupied the positions of Soultz, Seltz, Haguenau and Brumath. This was the morning of the 4th of August, and in such an extent of ground the French cavalry might have found plenty of occupation in outpost work; but they did nothing, with the result that the French Second Division of 7,000 men were completely taken by surprise and vigorously attacked by 35,000 Prussians, who poured a heavy artillery fire of shells into their ranks.

In great haste General DOUAI called to his escort to follow him, and galloped to the front, where he was killed rather than retire; and the remains of the small force which fought with desperation against such large odds were compelled to fall back, together with the cavalry, who took no part in the action, owing to unsuitable ground for charging.

The Prussian cavalry vedettes followed closely upon the retreating French and never lost sight of them, notwithstanding the most dreadful weather; so the retreat continued, until the night of the 5th and 6th, when they joined the First Army Corps, which was united near Reichshoffen and Froeschwiller.

The activity of the Prussian scouts was of inestimable value during this retreat of the French, and contributed in no inconsiderable degree in making preparations for the battle of Worth, which took place on the morrow.

BATTLE OF WORTH, OR FROESCHWILLER.

The first dawn of the morning of the 6th August had come, and the French cavalry had obtained no information of what the Prussians were doing, so that Marshal MCMAHON was not aware that the strength of the Prussian force in front of him had been tripled during the night, so that he really awaited the attack of 140,000 Prussians with his 35,000 men drawn up on the high ground between Froeschwiller and Worth, Elsashausen and Gunstatt.

The French cavalry consisted of the Brigade Michel, Eighth and Ninth Cuirassiers on the right, which was the weakest position, the Division Bonnemain, First, Second, Third and Fourth Cuirassiers in reserve in rear of the center, and the Third Hussars and Eleventh Chasseurs, the Brigade Septeuil, on the left.

No time was lost by the Prussians in opening fire by their advance guard, and very shortly afterwards a general attack was made on all points of the French position—right, center and left—and by 11 o'clock no less than fourteen batteries of artillery were pouring a destructive storm of shells into the village of Worth, causing

the terrified inhabitants to fly in all directions, but, as I have already stated, I must confine myself to the doings of the French cavalry only, who, at about 1:30 P. M., were called upon by the general to save the day if possible; and the results of their charges were simply bloody and useless, as they had to attack an enemy always out of reach and often out of sight; but it was the first employment given the cavalry in this campaign.

The First and Fourth Cuirassiers charged by successive squadrons—retiring with the loss of many men and horses—the latter regiment their colonel.

The Second Cuirassiers then charged by wings and lost their colonel and five officers killed, besides others wounded, and 129 men and 250 horses.

The Third Cuirassiers now came into action and one wing charged, losing the colonel, seven officers and seventy men and horses killed and waunded.

This now seemed the right moment for the Prussians, who at once attacked with redoubled energy—regiment after regiment marching to the attack of the French position in front and flanks—so that the only hope of the French seemed to them to be is using their still remaining fresh cavalry on the right under General MICHEL, so the order was given him to charge.

Immediately down came a magnificent array of horsemen at a gallop that made the earth shake—the Eighth Cuirassiers leading—but as soon as they reached the proper distance, two volleys fired by word of command, followed by independent firing, transformed two-thirds of these men and horses into a line of corpses.

The Ninth Cuirassiers and Fourth Lancers, who had arrived during the day, and were following in support of the first line, were even more unfortunate, owing to the obstacles in their path, which caused the effect of the infantry fire to be more murderous still, and what remained of these regiments tried to escape through the village of Mosbrun, which, unknown to them, had already been occupied by the Prussians, who fired upon them in all directions from the houses, and as they had also blocked up the end of the street leading through this village, all who were not killed were taken prisoners.

I must mention, too, that the Second Lancers, who had also arrived since the morning, were left exposed to fire all day, and apparently no attempt was made to get them under cover. This regiment lost their colonel, eleven officers and many men and horses without having charged.

The only important piece of information gained was that, although the bullets rained like hail on the cuirasses, not one was pierced.

Thus ended the first employment of the French cavalry in this war.

I do not think it is necessary for me to point out the lesson to be learnt from this day's doings; it is patent to everyone.

The cavalry was sacrificed—for what? To save the infantry

and give it time to retreat. Well, a small portion of one regiment was saved, but at the cost of three times as many men and horses as there were foot soldiers saved; and there was no regular retreat after all, but a rout, for the whole corps d'armee fled pell-mell.

Reichshoffen was the direction taken. At Niederbronn orders were given to make for Savern as a rallying point, and officers and soldiers, generals, cannons and wagons—all in one disorderly mob—pushed along the road all night of the 6th and 7th, arriving in scattered little bands, so that by 8 o'clock in the morning the remains of the cavalry regiments were collected together.

RETREAT TO CHALONS COMMENCES.

Naturally it was expected that upon arrival at Savern order would be restored, when suddenly the "parade call" sounded and the cavalry at once mounted and marched without rest by Phasbourg to Sarrebourg. How they were to live was a question that presented itself to the minds of most, for the enemy's cavalry had captured everything at the two battles of Wissembourg and Froeschwiller.

Fortunately, however, they excited the sympathy of their fellow-countrymen—the peasantry—who fed them.

Arrived at Sarrebourg, regiments were reformed and returns of killed and wounded sent in, generals resumed command of their brigades and no one supposed that L'Alsace would be abandoned without a struggle.

At noon on the 8th, the cry of the Prussians was raised as some cavalry scouts were seen, and the order was given to the French cavalry to saddle and bridle and retreat to Lunneville, where it was hoped that supplies of everything that was required would be obtained.

During this long retreat the Prussian scouts followed the retreating army and never lost touch night or day—reporting everything that took place to their chiefs, and keeping the retreating French in a constant state of alarm—because the French cavalry continued to keep together in masses.

They arrived at Lunneville, which is a large cavalry depot, on the 10th August, and now at last all wants and losses would be made good, and rations and forage once more regularly distributed. So generally,the spirits of everyone revived and the situation seemed to brighten with the prospect of rest.

The Germans had, however, by this time carried out the first part of their strategical campaign and pushed a large cavalry force as far as Nancy in between the several French corps d'armee which were now effectually separated, and besides spread the news everywhere that an advancing army in overwhelming numbers was near at hand.

These reports had also reached Lunneville and it was not long before the alarm was given that the Germans were upon them and their dreaded cavalry appeared in sight. Immediately all was con-

fusion—cooking pots were emptied, forage taken from the horses—and bridling up with all haste the retreat was continued by way of Colombey, Beaumont, Neufchateur and Joinville. Finally the corps d'armee of Marshal McMahon reached Chalons on the 20th August.

What now was the part played by the French cavalry in this long retreat? Simply nil; for they neither obtained information nor fought. It seemed to be a mere trial of speed, their only thought, apparently, to escape being cut off, and most lamentable mismanagement certainly in every department was only too evident.

The route was continually being changed, the rations never came up until a late hour, and were then generally short in quantity; moreover, owing to the bad habit of not quartering themselves in the villages, they got but little rest.

During the month of August it rained incessantly, and they had for camping grounds fields under water—the earth so soaked that the picketing pegs had no hold—neither shelter, nor straw to sleep on, and owing to the heavy rain could neither light fires nor dry clothes.

The horses were equally miserable. The wind blew away a portion of their scanty rations, and pressing together with their backs up and their heads out, they endeavored to protect themselves against the weather. Every morning, however, they were obliged to march, and men and horses left the species of bog in which they were encamped, stiff, tired and out of spirits.

How much better the Germans understood the art of war! Aware of the extreme importance of preserving above all things the strength of their troops, they quartered them on the inhabitants.

Immediately on their arrival in a village the men were housed, and the horses put into barns. In this manner they rested and dried themselves thoroughly, were well fed, and were in the best condition to continue the struggle.

By the French system of bivouacking they imagined they lessened the cost of war for the inhabitants, but such is not the case, for soldiers who have to bivouac lay hands on all the wood and straw that can be found for camping purposes. It would, therefore, have been less expensive for a peasant to give a place at his fire, as he would then avoid waste.

Besides, if you do away with tents, you lessen the amount carried on the horse, and can thus get more work out of him, and you also enable the horse to rest himself by putting him under shelter every night.

SECOND PART.

We must now look to see what has been going on in the Second Army Corps, under the command of Marshal Bazaine, for you will remember I mentioned in my opening sentence that the French had commenced operations upon exterior lines.

After an unimportant success by General Frossard at Sarre-

bruck, on the 2d of August, he retired to the right bank of the River Sarre, and took up a position a cheval on the Forbach road, with his right resting on Spicheren and his left towards Stiring, having his reserves in his rear.

On the 6th of August General STEINMETZ ordered the German cavalry to pass through Sarrebruck and gain the left bank of the river. Then following up closely he attacked the French Second Corps d'Armee and forced them, after an obstinate and sanguinary engagement, to retire on Forbach, and from there to Saint-Avold. This was the battle of Spicheren.

The French cavalry had nothing to do during the day, but towards evening found an opportunity of acting, and, as this little episode of the battle concerns the question of cavalry soldiers fighting on foot, it deserves mention.

The troops who were entrusted with the duty of guarding the outlets from the wood had been forced to retire, and there was no one left at this point but one company of engineers and a portion of the Twelfth Dragoons.

Two squadrons of this regiment were accordingly dismounted, and, under cover of some slight earthworks hastily thrown up by the engineers, opened fire on the heads of the advancing columns.

Having succeeded in checking their advance, they remounted and charged the enemy, whom they repulsed, and then, after this brilliant feat of arms, retired behind the railway, and, with the assistance of the engineers, they maintained this position long enough to give the troops who occupied Forbach time to make the dispositions they wished.

RETREAT TO METZ.

After this battle the retreat to Metz commenced on the 7th of August and continued to the 14th, and the role of the French cavalry amounted to very little during this time, while the ingenious manner in which the Prussian cavalry scouts kept up a persistent touch and surveillance on all their movements was a revelation.

General CISSEY, who commanded the First Division of the Fourth Corps, not having had any experience of this kind of work, and losing all his patience at the continued surveillance of the enemy's cavalry, ordered the Second Hussars to put a stop to it, so a squadron of this regiment was accordingly told off to drive them back, and Captain JOUVENOT, who commanded, by his energetic attack drove in the Prussian outposts, but, having pursued too far, was repulsed and killed, several officers and men being wounded. However, from this time forth, the French army was allowed to retire unmolested to Metz.

In the course of the 10th, 11th, 12th, 13th and 14th of August, various reconnaissances were made by the Chasseurs d'Afrique. Of these one example deserves mention. The German cavalry had entered the town of Pont-a-Mousson, cut the telegraph wires and railway. Informed of what was going on, General MARGUERITTE

turned out his brigade at 1:30 o'clock, proceeded as quickly as possible along the left bank of the Moselle and arrived about 4 o'clock at Pont-a-Mousson. The Third Squadron of the First Chasseurs d'Afrique passing through some orchards, galloped up the railway, and caught the Germans at work in the railway station. The remainder of the brigade, sword in hand, charged, notwithstanding the slipperiness of the pavement, up the streets to the end of the town. There they were received with a fire from the windows.

General MARGUERITTE, who was in the thick of the affair, was attacked by a Prussian officer, who aimed at his head; his forage cap, however, was alone cut, and the Prussian fell covered with wounds.

At the termination of some other reconnaissances that were pushed along the Moselle, the Prussian cavalry, consisting of four regiments, after exchanging shots, left the plateau of Mousson, having sustained a loss of two officers and fourteen men killed, and two officers, thirty-two rank and file and forty-one horses made prisoners and brought into Metz.

On the fourteenth of August the French Second Army Corps found themselves concentrated around Metz, and now all the scattered forces were formed into two distinct armies, viz: Marshal BAZAINE'S and Marshal MCMAHON'S, and the strategical plan of campaign henceforward for these two bodies was to endeavor to unite beyond the forests of the Argonne, while that of the Prussians was to prevent them.

This same evening General DE FORTON bivouacked on both sides of the Mars-la-Tour road, with the Brigades Murat, First and Ninth Dragoons, and de Gramont Seventh and Tenth Cuirassiers. Next day Prince FREDERICK CHARLES pushed forward his cavalry to make a reconnaissance on a large scale, and establish contact, which was afterwards constantly kept up by scouts. An artillery duel, with some skirmishing, had also lasted most of the day, and as it was of the utmost importance to cut off the Second and Sixth French Corps and force BAZAINE'S army into Metz, the Germans marched all the night of the 15th, traversing an immense track of ground.

BATTLE OF REZONVILLE.

On the morning of the 16th of August the French position was as follows: The Second Corps in front of Rezonville on the left of the Verdun road, the Sixth Corps on its right, the Third Corps between Verneville and Saint Marcel, the Fourth Corps on the march for Doncourt, and the Guards occupied Gravelotte. General DU BARAIL'S cavalry were at Conflans, while General DE FORTON'S cavalry were at Vionville when he received the order to march at 5 o'clock A. M., but this was countermanded, and at 9 o'clock the saddles and bridles were taken off. The dragoon officers in charge of the picquet had twice sent in to announce the approach of a large body of cavalry and artillery. A staff officer was sent out to see if this was the case. He returned and said there was nothing of importance going on, so the order to take the horses to water was

accordingly issued, the arrangement being that whilst three squadrons of a regiment were being watered the fourth squadron was to be on the lookout. Scarcely, however, had they arrived at the watering place when the Prussian artillery opened fire with a storm of shells, and both the bivouacs and the villages were literally riddled. The Prussians had got information from their scouts of the carelessness of the French, and had accordingly brought up their artillery at a gallop and placed it on both sides of the road, from which position they fired as fast as they could.

Immediately there was a panic in the streets of Vionville. The men, mounting their horses, pushed up the road, which was encumbered with wagons and loose horses. The officers, in spite of the heavy fire, tried to stop their men, but only succeeded with great difficulty. Finally, they managed to restore order in a few troops, and these served as a rallying point to the remainder, and they all now returned to the plateau of Rezonville.

The cuirassier brigade, who, fortunately for themselves, had quitted their first ground and gone further to the rear, escaped this shower of shells. They now mounted in perfect order, and to avoid being cut off by large bodies of the enemy's cavalry, which threatened their right, they retired behind the wood which borders the Roman road on the east; then passing in front of Villers aux Bois, they debouched on the plateau of Rezonville, a little to the right of the Ninth Dragoons.

VALABREQUE's division, who had been on the *qui vive*, mounted quickly and arrived soon after, and in order to get under cover from the Prussian artillery they placed themselves close to the wood of Villers. This division was composed of General VALABREQUE's Fourth and Fifth Chasseurs and BACHELLER's Seventh and Twelfth Dragoons.

At the sound of the cannonade the Second Corps stood to their arms and formed up. General BATAILLE's division was on the right, General VERGE's on the left and LAPASSAT's brigade extended to the right by Marshal CANROBERT. Two attacks are now prepared against them: the front one from Mars-la-Tour and Thionville, the other on the left from the wood of Gorze. Up to about 11 o'clock the action was undecided, but at that moment General BATAILLE was wounded, and on the left of the Second Corps the French began to give way. To put a stop to this and to reëstablish the battle, General FROSSARD determined to charge the Prussian infantry, and accordingly ordered up the cavalry.

The Third Lancers formed the first line, and beyond them was General DESVAUX's division, who had taken up a position on the right of the Rezonville road, in rear of that village, and a distance of about 1,000 yards from their lines.

General DESVAUX now ordered General DE PREUIL to advance in support, with the cuirassiers of the Guard along the other side of the road and in rear of the Third Lancers. This movement was immediately executed, and the regiment, placed parallel to the brow of the hill and a little below it, was under cover.

A few minutes afterwards this formation was changed to a double-column formation with the Fifth Squadron in reserve. Towards 11:30 o'clock the fire, which had been very severe, slacked a moment, and suddenly the French saw their skirmishers falling back in disorder over the brow of the hill. They were closely followed by the enemy's artillery, who crowned the heights and commenced to shell the cavalry.

Two squadrons of the Third Lancers now advanced, but as they received no order to charge, they came back after going a short way.

General DE PREUIL then sent to inform General DESVAUX that in this part of the field there was a general retreat, and almost immediately he received the order "to charge." This officer's command was at so great a distance from the enemy's infantry that the success of a charge was doubtful, unless preceded by a heavy artillery fire, which should make some impression on them. This objection was raised, but General FROSSARD himself came up and said: "Charge immediately or we are all lost."

THE FIRST GREAT CHARGE.

Now, here again we see the same call for the cavalry on the part of the French which we have seen made in the previous engagements in this war, and as this battle of Rezonville, or Mars-la-Tour, was almost entirely an affair of cavalry on both sides, and perhaps the most important one of modern times, I shall go a little more into details and give you almost Colonel BONIE's own words.

The instant the command was given General DE PREUIL ordered the first echelon to advance, and they galloped off in good order. The second followed at about 150 yards distance, but as they were going too fast the General ordered them to slacken their pace, and, accompanied by his staff, placed himself on their flank. In the meantime, the first line, going as fast as they could, left the second a long way behind. As soon as the enemy's skirmishers saw the French cuirassiers start they formed rallying squares as quickly as possible, and in doing so had ceased firing.

The advance accordingly arrived at a good distance, and without much loss, when suddenly they were hindered by various obstacles which lay in their way. These consisted of biscuit barrels, a baggage wagon and camp equipments that had been abandoned by the French troops in their hurried retreat.

Obstructed in their advance, the first line inclined to its left, and the further they went the greater the pressure became, and ended by throwing the two squadrons into disorder, so that when they received, at thirty paces distance, the terrible fire of the Prussians they were thrown into hopeless confusion, and rushed forward into the intervals of the Prussian squares.

The Lieutenant-Colonel was badly wounded. The commandant, though mortally wounded, nevertheless forced his way into a square followed only by an adjutant, who was killed on the spot. As for

the others, obliged in order to retreat to go right around the squares, they received the fire of all four faces, and were annihilated.

The second line was now unmasked; they were received by a file fire when at a distance of about 300 yards; this made a few gaps in the line, but they continued in good order, for the fire ceased for a moment; but when at 100 yards distance they got the order to "charge," the enemy poured in such a hail of bullets that more than half the line was knocked over. The remainder got entangled in the obstacles that covered the ground, or else fell into a ditch that was dug about ten paces in front of the squares.

The third line was equally unsuccessful, and was dispersed by the fire like the two preceding ones.

Whilst the cuirassiers of the Guard tried to re-form they were pressed by two regiments of Prussian cavalry, who passed through the intervals between the Prussian squares, one regiment coming through the right center interval. The other regiment—Fifteenth Lancers—came through the other interval, and were received with a sharp fire at a short distance from the French skirmishers, who, not having had time to retire, had lain down in the ditches along the roadside. This fire stopped the pursuit of this regiment. As for the Prussian hussars, with the greatest daring, they pursued so far that they succeeded in surrounding Marshal BAZAINE, who, with the whole of his staff, were obliged to draw swords and join in the melee, when a squadron of the French Fifth Hussars and another of the Fourth Chasseurs, warned in time by General DE PREUIL, arrived extremely *apropos*, and rescued the Marshal and his staff.

This charge of the French hussars and chasseurs was made perpendicularly to the road and presented their flank to the Prussian squares, who were, however, unable to fire, as their own men were between the French and themselves.

The French cuirassier regiment lost in this charge 22 officers, 208 rank and file, and 243 horses.

As the squares that were charged remained unbroken the result was almost *nil*.

It is to be supposed that had the artillery opened fire on the line that was to be attacked, as General DE PREUIL desired, a different result might have been obtained.

Another conclusion that may be formed is that the ground ought to have been previously reconnoitered, as, had that been done, the charge might have had a different direction.

At the same time that the Prussians displayed their attack on Rezonville, their cavalry, under the command of Duke WILLIAM of Mecklenburg, endeavored to overthrow the French Sixth Corps and some batteries of artillery, which had been pushed on ahead on the plateau, with a battalion of chasseurs as an escort. The Prussians began by crushing the French fire by a superior one; then sent forward two lines of cavalry in echelon, at a distance of about one hundred yards from each other. The first line was composed of cuirassiers and the second of lancers. These two lines charged,

overthrew the chasseurs *a pied* in spite of their well sustained fire, sabered the French batteries as they passed, and endeavored to annihilate the remnants of the foot soldiers. But they were unaware that the moment of reckoning had arrived, and that they were about to be cut to pieces by the French cavalry.

I want you now to hark back a little in remembering how I explained that DE FORTON'S and VALABREQUE'S divisions at the termination of certain movements had gone and placed themselves near the wood which borders the Roman road.

On arrival the two front brigades of General DE FORTON were formed in column of regiments right in front, and had executed several changes of front, sometimes with a view to facing Rezonville and sometimes Vionville. The last time they executed this movement they became inverted, not only in each regiment, but in each squadron, and in this formation proceeded to the top of the plateau, keeping the wood close to the Roman road in their rear.

On seeing the Prussian cavalry among their batteries, General DE FORTON ordered the dragoons and a portion of the cuirassiers to advance. They deployed and attacked the advancing line. In the charge the Ninth Dragoons passed through the Prussian cuirassiers, who opened their ranks without stopping, and inclined to the right and left against the French artillery and then pushed on to rejoin their own lancers.

The charge terminated, the Prussian lancers wheeled about to retire, but were attacked by the French cuirassiers who charged to the command, "Attentions, les Cuirassiers — Partez." As these words indicate no sort of formation they advanced in a confused mass, the officers being forced to push their horses to the utmost in order to keep ahead of the men, who were riding with their reins completely loose. A terrible melee now took place; the Sixteenth Prussian Lancers taken in flank were overthrown, sabered, and actively pursued, when suddenly the White Prussian Cuirassiers came up to their assistance, but their horses were so blown by their long advance that they were thoroughly done.

It was now the French turn, and the cavalry of General VALABREQUE advanced to join DE FORTON'S and engage the enemy.

The fight was now at its height, and was waged with the greatest fury on both sides. The eagerness of the French was so great, and the two sides were so mixed up, that in spite of the trumpets sounding the rally, the massacre went on. In a few seconds the Prussian cavalry was annihilated and the ground strewn with the dead bodies of lancers and white cuirassiers; the best mounted and those taken prisoners alone escaped.

At this moment the Prussian infantry from the side of Vionville opened fire on the ground on which the Seventh French Cuirassiers were operating. The retreat was, therefore, sounded and the French regiments were re-formed and proceeded to Gravelotte.

A short time after the charges I have described took place General L'ADMIRAULT, who commanded the French right wing, and who

had marched to the sound of the cannon, found himself opposed by the enemy in considerable force.

The divisions of the Fourth Corps, who had advanced with success as far as the plateau of Greyere, were now stopped by the Prussian infantry preceded by artillery debouching by Mars-la-Tour. They were also threatened in flank by a large body of cavalry.

THE FINAL STRUGGLE.

We now come to the furious death struggle, which terminated this awful day, 16th of August, when no less than 6,000 cavalry soldiers contended for the mastery, and it is certainly a great object lesson.

It was 4:30 o'clock in the afternoon; a Prussian horse artillery battery had placed itself in a position to flank the highway upon which the French were marching. So General L'ADMIRAULT sent orders to Generals DU BARAIL, LEGRAND, and DE FRANCE, to protect his right with the cavalry.

General DU BARAIL immediately attacked the battery with the Second Chasseurs d'Afrique with such quickness that the artillery had hardly time to fire, and sabering the gunners, continued to gallop on, but seeing a formidable force in their front, diverged to the left, and rallied behind the angle of the wood, and returned after firing a volley from their rifles, which prevented the battery again taking part in the action.

No mention is made as to whether this volley was fired by dismounting the men or not, but as we have a standing rule never to fire mounted except to give an alarm, I take for granted that it was fired on foot.

While this was being done, Generals LEGRAND and DE FRANCE formed up their cavalry into two distinct masses, each of two lines, when a second order came from the commander-in chief to attack at once. General DU BARAIL, however, remarked that the supreme moment for a successful charge was passed, as the Prussian cavalry under General BREDOW were in mass upon higher and more advantageous ground, and that they should first be weakened by artillery fire; but the order to charge was repeated. So the whole of the French cavalry started at a gallop, which the Prussians seeing, they also started down hill with loud hurrahs at full speed. The shock of two such masses coming into collision was something terrible, and the confusion and melee of such numbers of men, in all sorts of uniforms, contending against one another in a hand-to-hand furious death struggle, quite impossible of description.

In one part of the field the French dragoons mistook their own blue lancers for Prussians and sabered them without mercy. Even when the men cried out, "*Ne nous frappez point! nous sommes Francais!*" the dragoons thought it was a ruse to stop them, and continued slaughtering their own comrades.

At last the French trumpet sounded the "recall," and very shortly afterwards the Prussian trumpets sounded the "rally," and

they re-formed upon the original high ground they had first occupied and retired to Mars-la-Tour, leaving the French cavalry in possession of the field of battle. Thus ended this most awful day, and I think a few general observations upon the employment of the cavalry in this engagement are useful.

The errors committed were as follows:

Charges commenced at too long distances.

The ground not reconnoitered by scouts.

Infantry attacked in position without having first been subjected to fire.

Regiments allowing themselves to be taken by surprise while in process of formation.

Attacking without reserves.

Danger of light cavalry charging heavy cavalry.

No concert of action between the several generals, and want of a head in command.

RETREAT TO METZ.

The retreat of Marshal BAZAINE's army to Metz and its final surrender is soon told.

The road to Verdun being blocked by the Prussians, the French fell back and fought the battle of Gravelotte on the 18th of August.

In this battle the only action of their cavalry was a charge of the Third Hussars who, coming unexpectedly upon a sunken wall in the ground, were stopped by it, and behind this wall the Prussian riflemen showed themselves and decimated the ranks of the hussars as they retired. The retreat, therefore, continued, until the whole of the corps d'armee was shut up in Metz on August 31st and September 1st.

The siege which followed is anything but interesting or pleasant to read, for it was more like a horrible nightmare of famine, starvation and death. The poor, unfortunate cavalry horses were utilized for transport purposes at first, and then many hundreds of them eaten as food by the starving garrison, until none were left, when Marshal BAZAINE capitulated and the whole army became prisoners of war, and were sent into Prussia for safe keeping.

Marshal BAZAINE, you will remember, was tried at the conclusion of the war on his return to France, and sentenced to death, but subsequently commuted to imprisonment for life in the island of Margueritte, close to Cannes in the south of France; and, as it happened, I was passing part of the winter 1872–3 at Cannes when he escaped with the assistance of his wife, who was staying in the next hotel to mine, and who was materially assisted, it was said, by the connivance of the guard, who were old soldiers and had served under the Marshal. But be that as it may, I shall never forget the intense excitement that prevailed in Cannes that morning among all classes of citizens and strangers, for suspicion seemed to rest upon everyone.

THIRD PART.

We left Marshal McMahon on the 20th of August in command at the Chalons camp of anything but a desirable army, and at a council of war held by the Emperor it was considered advisable to retreat behind the walls of Paris. So on the 21st of August, at 5 o'clock in the morning, the march to Rheims commenced. Marshal McMahon mounted his horse at 11 o'clock and the Emperor Napoleon III. followed in his carriage at noon, surrounded by his large staff.

No sooner, however, was this news heard in Paris than Mons. Rouher left to inform the Emperor that a revolution against the provisional government was eminent, and at all costs the retreat should stop.

Now the position of matters at the moment as regards the Prussians was this: Prince Frederick Charles was preparing to force the army opposed to him into Metz and then to surround it, while two other armies were marching on Paris, one under the Prince Royal of Saxe by way of Verdun, and the other under the Prince Royal of Prussia by Nancy and St. Dizier, while their cavalry were far in advance scouring the country.

Indecision as to what was best to be done marked every movement of the French, and orders and counter orders were incessantly given, until on the night of the 27th of August the following telegram from the Minister of War in Paris to Marshal McMahon arrived: "*Le Conseil de Regence, et le Conseil des Ministres vous supplient, de rallier quand meme l'armee de Bazaine, sans quoi une revolution est imminente a Paris.*"

This imposed an impossible task upon Marshal McMahon, but without hesitation he at once gave the necessary orders, and altered his route by a flank march across the front of the advancing Prussians, and endeavored to reach Bazaine by a rapid forced march. So he gave orders to his large cavalry force to clear the road of obstructions.

Thus you see how, in addition to all the other difficulties which the French army had to contend with in this campaign, political considerations at the capital also entered into the contest, in their rear, and paralyzed the arm, thus helping materially to contribute to the ruin of France.

On arrival at Harricourt a halt was made so as to endeavor to collect together the widely scattered columns who were marching in a very straggling manner, for it was known that the Prussians were at Buzancy.

Very little time, however, was permitted the French, as they were at once attacked by the advancing Germans, who easily defeated the French in this combat of Buzancy, and drove them in the direction of Beaumont, where a general action took place with disastrous losses.

In this battle of Beaumont, there was not even the semblance of concerted action among the chiefs, for the active Prussian cavalry

scouts succeeding in capturing several of the French staff officers when carrying their orders and dispatches, thereby creating great confusion and the blocking up of roadways, during which the Fifth Regiment of Cuirassiers, while protecting the artillery and baggage crossing a bridge, were almost annihilated.

This bridge was over the River Meuse and many of the cuirassiers who escaped death from the enemy's cannon were drowned by endeavoring to swim the rapid river with their heavily laden horses.

Marshal McMAHON immediately sent word to the Emperor, who was at Carignan, that all chance of succoring Metz was at an end and that he was in full retreat for Sedan. During the whole of that dark night the disorder of a hasty flight, amounting almost to a panic, continued, for they were closely pursued by the Prussian cavalry scouts, who never lost sight of them and reported every movement to their own generals.

The situation that the Emperor found himself in was certainly a most pitiable one for the head of a nation to be in, but he had no choice but to rendezvous at Sedan, and this night of the 31st of August and 1st of September was forever to be a most memorable one in the history of France.

BATTLE OF SEDAN.

At the early hour of 4 o'clock in the morning the Prussians assailed the French with a heavy artillery cannonade, and shortly afterwards Marshal McMAHON was seriously wounded, and from the fast loss of blood was obliged to hand over his command to General DUCROT. Unfortunately, General DE WIMPFFEM, who had two days before arrived from Africa, claimed to be the senior officer, and therefore commander-in-chief. So divided command was added to all their other misfortunes, and while this wrangling was going on 240,000 Prussians were surrounding their little army of 60,000. The battle raged until about 8 o'clock in the morning, when the cavalry were called upon to make a supreme effort to change the fortunes of the day, for the sake of France and all that Frenchmen held dear; and right loyally did they respond, as regiment after regiment galloped up the slopes to the attack of batteries of artillery in position on the crest, with rifle skirmishers upon their flank, resulting in a useless waste of life, as every cavalry soldier well knew.

The first line was composed of the First Chasseurs d'Afrique; the second line in support were the Second Chasseurs d'Afrique; the third line had the Fourth Chasseurs d'Afrique; while the reserve was formed by the First Hussars and Sixth Regiment Chasseurs d'Afrique.

All these regiments charged in perfect formations and exact distances, as laid down in the cavalry regulations drill book. But what of it? The volume of fire poured upon them as they advanced made it quite impossible over the difficult ground to reach the

enemy, so they diverged to the right and left, leaving very many dead horses on the ground. Two squadrons of the Fourth Lancers that had just arrived from Floing, where they had passed the night, seeing the failure of the Chasseurs d'Afrique, made a headlong desperate charge at the Prussian position, and retired with the loss of two-thirds of their number.

As the fire of the Prussian batteries made it impossible for anything to live on the open plateau, the cavalry retreated towards Sedan village, whither the French infantry had already gone, and were occupying the heights, and here General MARGUERITTE reunited his cavalry division.

About 2 o'clock in the afternoon the incessant rain of fire from all sorts of projectiles was so great that nothing could exist anywhere in the French lines; General MARGUERITTE therefore decided to make another charge, but being desirous to reconnoiter the ground, rode out himself in front, and was struck by a rifle bullet in the breast, living only just long enough to ride towards General GALLIFFET and hand over his command, and then fell dead.

This death of their gallant general nerved every heart in that brilliant array of horsemen, and General GALLIFFET, placing himself at the head of these six regiments of cavalry, gave them the command "to charge," and led the formidable post himself down the slopes of Sedan.

These wild charges were twice repeated, until on an average 240 men and horses out of each regiment were killed or wounded, and it was found simply impossible to penetrate the Prussian lines. Although these charges were ineffectual, the cavalry proved themselves to be worthy successors of those who had fought at Waterloo, Jena, Friedland and d'Eylau, for they saved the honor of the French arms, and showed their readiness to sacrifice themselves at the call of duty, and the praise given them by the Emperor of Germany in his dispatch containing the news which he sent to the Empress should be forever written upon their standards in letters of gold.

General SHERMAN, too, who was also a witness of these deeds of heroism, said he had never seen such a brilliant exhibition of devotion as was shown in these mad charges of folly to certain death. The German press were unstinted also in their praise.

By 7 o'clock in the evening the last shot had been fired and a white flag was flying over Sedan.

The remnants of the cavalry regiments in their rage at the idea of becoming prisoners of war, broke everything belonging to themselves, such as pistols, swords, lances, and tore the saddles from the horses and cut them, turning their horses loose, which increased the frightful demoralization everywhere, as these animals galloped frantically about like wild horses upon our western prairies.

When you think of it, that this battle had raged unceasingly for fifteen hours, and that 14,000 dead and wounded French soldiers, besides the immense number of Germans that lay all around the

village, in every conceivable form of misery, pain and suffering, during this dreadful night of darkness and despair, added to a heavy downpour of rain that closed the awful day and soaked the ground with water as well as blood, it is impossible to imagine anything more hideous or more frightful than what those poor soldiers endured, unless you compare it to the account of DANTE's "Inferno."

The survivors of this battle were marched off just as they were, tattered, famished, distressed and broken-hearted, into exile as prisoners of war. Such was the end and such was the role played by the French cavalry and the Army of the Rhine in this war.

We cannot do less than bow our heads in sorrow for these gallant soldiers, and admit that it was indeed a hard lesson in the art of war that had been administered, and pray that a similar fate may never be ours.

CONCLUSION.

After what I have stated it is not very difficult to see what were the mistakes that were made, nor what are the requirements of modern war, for the fundamental principles of cavalry remain the same as ever—the man and the horse remain the same—but a change in tactics is necessary to meet the requirements of to-day. This the French cavalry have now accomplished in so marked a manner that there is little to choose between the 55,000 cavalry that France again possesses and the 70,000 belonging to Germany, except in the number.

The lessons for Canadians to learn are: The absolute necessity of a high-class special education for all ranks; officers, non-commissioned officers and men must be carefully selected, on account of their fitness, and highly trained; also the horses, whose quality must be the best obtainable.

Superior arms and equipment are indispensable, and as light as possible, consistent with serviceability and durability.

The weight generally carried upon the horse reduced to a minimum in order that mobility and endurance may be assured and prolonged.

The enlistment of some specialists as pioneers, who could destroy or repair railroads and bridges, and throw up a hasty entrenchment with pick and shovel if necessary; a few good telegraph operators and men who understand the handling of captive balloons, and signalling, both by night and day.

As outpost and reconnaissance work, and the obtaining of accurate information, is so important, everyone should be able to scout intelligently, be a first-class shot with either carbine or revolver, and able to work a quick-firing maxim gun on a pinch. Also being able to write a hurried report and make a rough sketch of ground cannot be forgotten and should not be overlooked when enlisting recruits.

Every section of four should be a complete little group of itself capable of being detached as a patrol, and composed of four inti-

mate friends or neighbors who have confidence in each other—and they and their horses should always be stabled together and fall in together in the same places on parade, acting under the orders of their No. 1, who should be a senior.

On the field of battle an absolute knowledge of the ground must be obtained, and its inequalities made use of to surprise infantry when out of ammunition; also to prevent supplies of ammunition reaching them.

Wide turning movements on the flanks and raids on the lines of communication, destroying railroads, bridges and supplies in rear of an enemy, are of immense importance, and had such a use as this been made of the French cavalry it would have entirely changed the whole campaign, though in might not have prevented the ultimate success of the Prussian arms.

Charges should be reserved for the attack of hostile cavalry, as at Rezonville, when, other things being equal, the cavalry that has the greatest momentum of pace and weight will win.

Keep ever in mind, too, the importance of a high sense of "discipline" in all your doings, whether on or off duty.

In Canada, though we are more of a driving than a riding people, still we possess the intelligence well suited to carry out what at first may appear to be an over-ambitious programme, but our immense territory and extensive prairies make it indispensable that the mounted arm should be cultivated and up-to-date if we are to hold our own in these progressive days.

I have, therefore, kept in view throughout my paper the "object lesson of reform," and have, I hope, interested you sufficiently to revive the old days when Montreal had four troops of cavalry, of which No. 4, the Royal Guides, was a perfect model for all beholders in those early days of the volunteer movement.—*Lieutenant-Colonel Turnbull, in Canadian Military Gazette.*

SWIMMING OF HORSES—REGULATIONS FOR INSTRUCTION IN SWIMMING IN THE GERMAN CAVALRY.

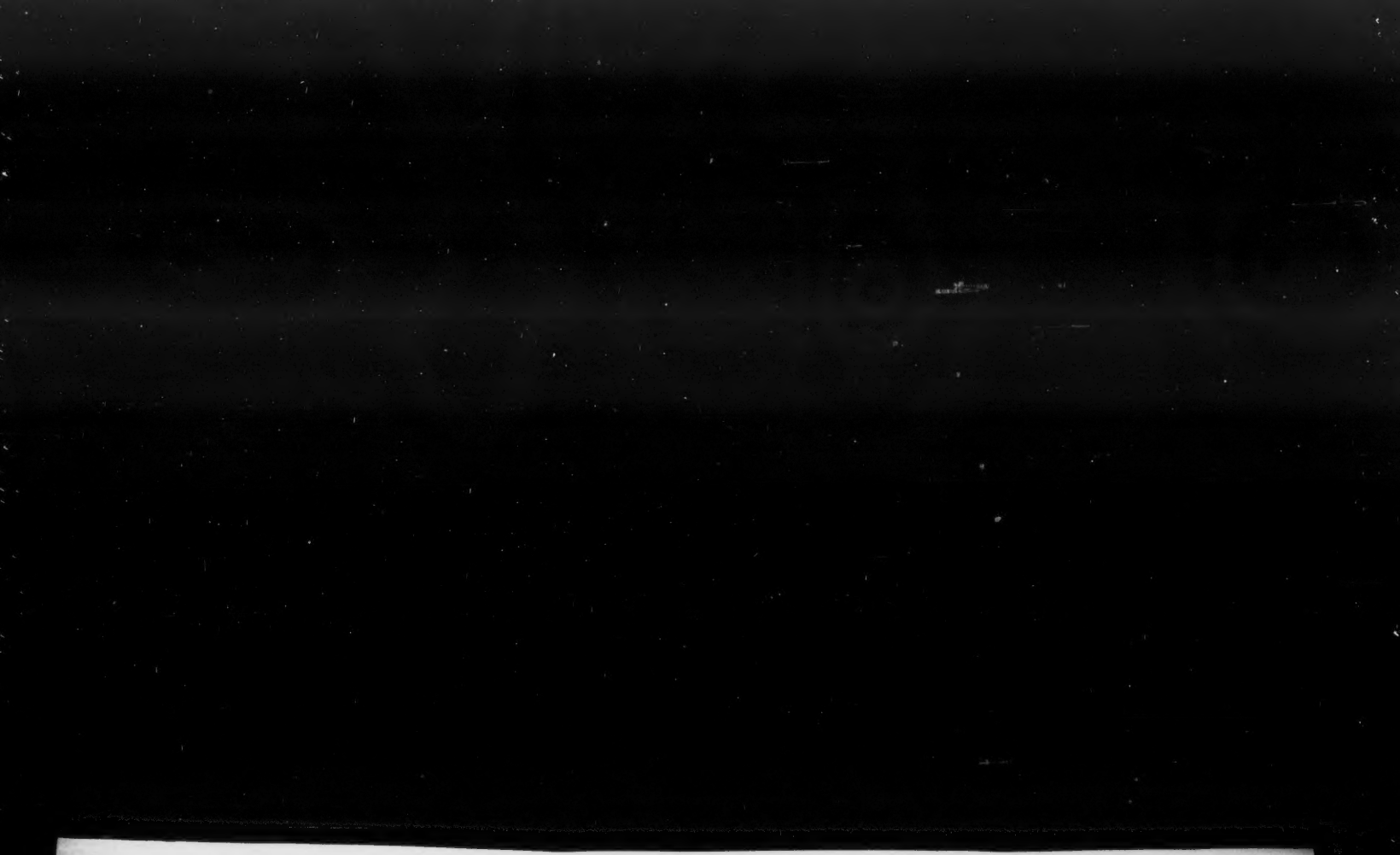
I.

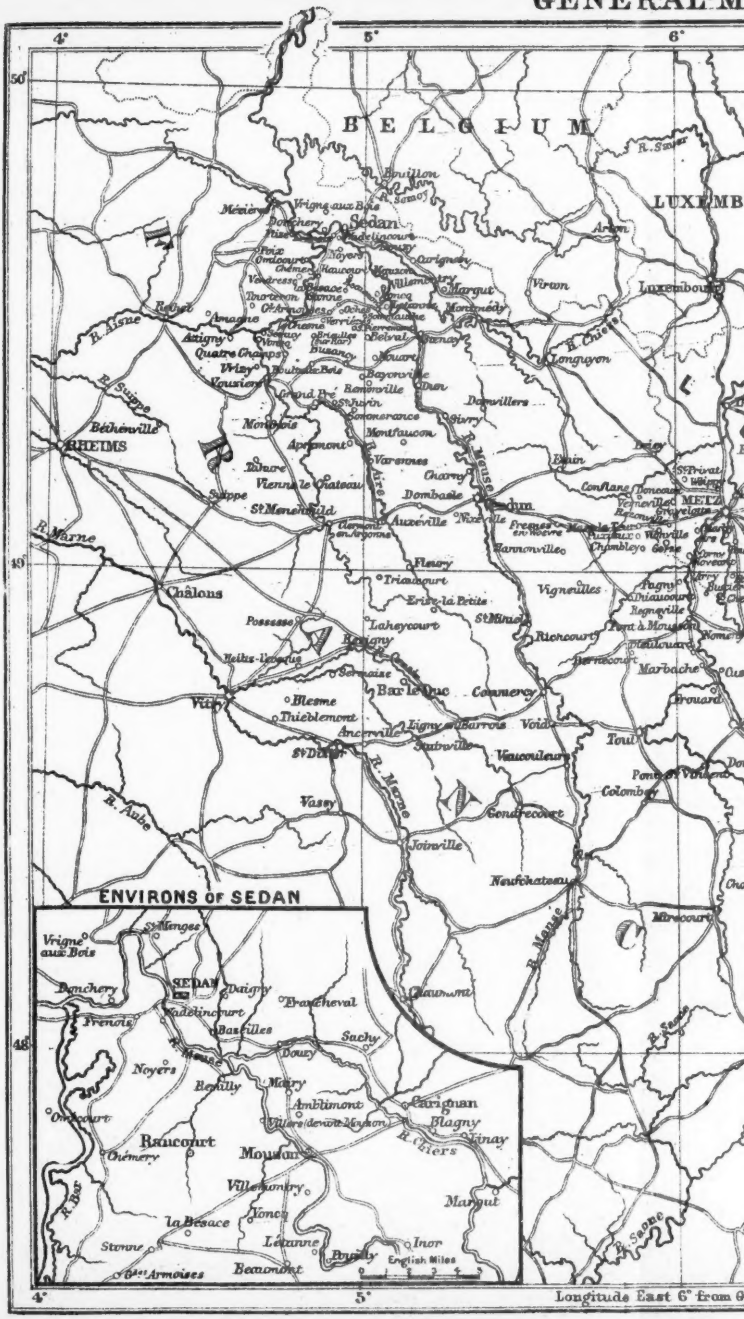
Cavalry should be able to cross all streams coming in its way. In case it comes across important rivers, where the distance to be passed in swimming is long, it will be able to make the passage only with the aid of boats or rafts.

However, an effort will be made to form in each squadron a few squads, which, lightly equipped, shall be able to swim across considerable streams without any assistance, and then continue their journey mounted, without stopping.

Whichever of these methods of crossing may be employed, it is necessary that a part of the troopers should know how to swim.

A squadron in which there are no men who can swim, cannot




4°
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BELGIUM
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Virton
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Rethel
Attigny
Quatre Champs
Vouziers
Grand Pré
Buzancy
Longwy
Montmédy
Stenay
Dun
Damvillers
Sivry
Montfaucon
Apremont
Varennes
Clermont
Verdun
Metz
Thionville
Briey
Conflans
St Privat
Gravelotte
Rezonville
Mars la Tour
Auxerre
Chambley
Gorze
Vionville
Jarny
Etain
Fresnes en Woevre
Hannonville
Auzéville
Dombasle
Nixéville
St Menehould
Suippe
Ste Menehould
Béthenville
RHEIMS
Châlons
Possesse
Heiltz-le-Maurupt
Somaise
Tricqueport
Flavy
Erize-la-Petite
Lahaycourt
Bonnet
St Mihiel
Richecourt
Vigneulles
Regnéville
Pont à Mousson
Marbache
Commercy
Bar le Duc
Blesme
Thiéblemont
Ancerville
Ligny en Barrois
Void
Toul
Vaucouleurs
Pompey
Vézelise
Colombey
Gondrecourt
Joinville
Vasy
Neufchateau
Mirecourt
R. Meuse
R. Aube
R. Marne
R. Saone
R. Chiers
R. Dor
R. Semois
R. Lisne
R. Suippe
ENVIRONS OF SEDAN
St Menges
Vrigne aux Bois
Donchery
SEDAN
Daigny
Frenois
Cadelinecourt
Frahcheval
Basfilles
Sachy
Douzy
Noyers
Remilly
Mairy
Amblimont
Carignan
Blagny
Villers devant Mouzon
Vinay
Oches court
Raucourt
Chémery
Mouzon
Villemontry
Margut
la Besace
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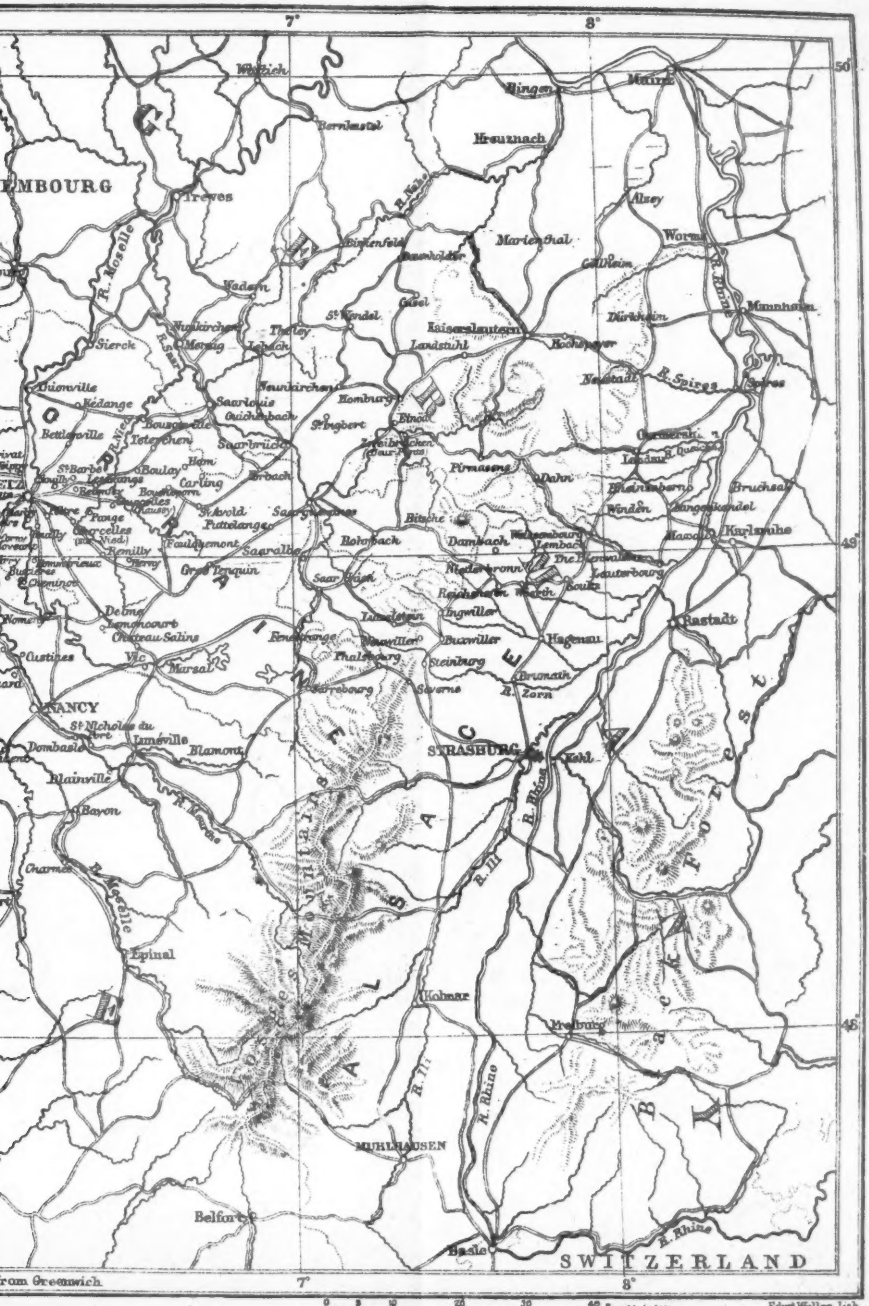
L MAP OF WAR-FIELD.



rom Greenwich.

ondon Bell & Sons

Edwd Weller, lith.

undertake, with any prospect of success, the various exercises in the swimming of horses, whether it make use of boats or not.

A trooper can only be useful on the condition that he is able to reach the shore without trouble, should it be necessary for him at a given moment to leave his horse or the boat.

It is necessary therefore, considering the importance of swimming for cavalry, that particular attention be paid to this instruction. In most cavalry garrisons a large enough body of water to permit swimming exercises is to be found; if necessary, it can be deepened as desired. A sufficient number of men must also be instructed in the use of oars, poles and the rudder.

All these exercises which constitute the instruction in swimming, can, with advantage, take the place of gymnastics and vaulting, during the hot days of summer.

II.

Freely Swimming Horses.

One of the best exercises to teach horses to cross rivers, is to accustom them to going into deep water without being frightened. The fear which takes possession of most horses when they enter water, will gradually disappear. All horses know how to swim by instinct, or, at least, will know after a few exercises.

The best results are obtained by allowing swimming horses the greatest amount of liberty; this is also the best way to avoid accidents. In order to make a horse swim, it will be sufficient if the trooper—who ought to be a good swimmer—reassures him. In a deep river a current is very useful, for experience proves that a horse ceases to struggle as soon as he feels the force of the current; it is also easier to swim when there is a current. The horse, as soon as he loses foothold, swims in the direction in which his head points. All that is necessary, therefore, is to give the desired inclination to the head, that is, place it in the direction the horse is to take in swimming.

The horse is most readily directed by means of the snaffle. The reins are knotted so as to rest on the middle of the mane. The trooper takes hold of the mane with one hand and holds himself stretched out in a horizontal position along the horse on the *upstream* side. In this way he allows his horse to draw him through the water and he keeps his head in the proper direction by touching the right or left rein lightly. It is hardly probable that the horse will resist these indications if they are skillfully made at the proper moment. If that does not suffice the trooper has only to tap him lightly on the cheek with the flat of his hand. It is in this way that a skillful swimmer causes his horse to take the proper direction, from the moment when the latter loses his footing, that is when he begins to swim; up to that moment he is to use only the ordinary aids to horsemanship.

This is also the moment when the trooper should leave his horse

and take to the water. This must be done neither too soon nor too late.

The struggle which sometimes occurs between the trooper and his horse when the latter does not respond to the aids, is entirely without danger to either. In case they become separated each one reaches the shore. The blows and kicks of the horse in deep water do no more harm to the man than a short immersion does to the horse. Especially the first time we take a horse in swimming we must be careful not to let him have his own way. If a horse is very stubborn it will be best to change riders.

One ought not to be on the horse's back when he is swimming. The rider grasps the horse with his legs and brings his weight to bear on his hind quarters. The horse being thus constrained in his movements is liable to go over backwards or turn on his side.

In campaign we shall probably see men who do not know how to swim forced to enter the body of water before them. We shall have to cross the horses swimming by troops, the riders holding on to the manes.

III.

(*a.*) *Swimming of Horses by Means of the Longe—Used Either From a Boat or the Opposite Shore.*

We have recourse to this method only with very stubborn horses (in most cases spavined horses) or when we have no good swimmers available. The longe is to be held double, without knot or ring—a lariat will not do, therefore—and passed through the halter ring so that it can be withdrawn by slipping it through. It is a good plan to turn the horse loose as soon as he has arrived at the middle of the body of water and has started for the other shore. This longe ought not to be over twenty or thirty yards long, for otherwise it takes, on account of its weight, the form of an arc of a circle and when we pull draws the horse's head under water.

(*b.*) *Horses swimming near the boat and held by their riders. The latter, as far as possible, seated in the bottom of the boat, leading their horses either by the snaffle, reins or lariat passed through the halter ring.*

This method like the preceding one, should only be employed where there are no good swimmers, or if their number be insufficient. It is of no assistance to a horse to be towed in this way; on the contrary, it is more difficult for him to swim under these conditions. He has not only to make the motions of swimming the same as if he were loose, but also has to regulate his speed according to that of the boat.

We frequently see horses swimming near boats give up all effort on account of the traction exerted, and, turning on their sides, allow themselves to be towed like an inert body.

In the field, when a troop has to cross a stream, the most practical method and the one generally employed, will certainly be that of making the horses swim near a boat.

The advantage that we have of being able to cross the rider and all his equipment perfectly dry, more than counterbalances the inconvenience to the horses of being restrained in their movements.

If the stream be not too large, not exceeding an average of say fifty to sixty yards, we can with advantage employ the boat or raft as a ferry, hauling it along a rope stretched from shore to shore. This ferry, if drawn by two men, one in front and the other behind, can, even with considerable current, be maintained in the proper direction; its speed can be regulated according to that of the horse which the rider holds by the reins. In this way a part of the inconveniences above cited, and which arise from the fact that the horse swims near the boat, may be avoided.

In order to act as rapidly as possible when it is necessary to carry across the riders, their bundles, etc., and afterwards to saddle up immediately, it is indispensable that each man's belongings be securely bound together, and arranged according to ranks and files in the boat, or whatever may serve to effect the crossing. Debarkation ought to take place in the same order and at a place decided upon beforehand. This place at which the horses will also be saddled will not be too near the place where the horses come out of the water.

If discipline is rigid, and if the resources and strength at our disposal are well husbanded, if non-commissioned officers and men are suitably distributed, the passage will take place in good order and with security.

(*c.*) *Horses Swimming Along a Foot Bridge.*

In this case it is easiest to direct the horse by making use of the lance. Unbuckle the strap which goes around the arm, and attach it by a knot to the snaffle reins and by the buckle to the lance as near the butt as possible. The trooper who walks on the footbridge can then regulate his speed according to the swimming horse and guard against the efforts of the horse to get on the bridge. In case it is necessary, a man can accompany the horse, holding him on the side opposite the bridge, up to a certain depth of water. This man can keep the horse, as long as he has a foothold, from resisting, pulling back, or rushing out of the water. When the horse commences to swim he ought to follow the direction of his head. In campaign it will be well to put up a footbridge every time we have a large number of horses (as a regiment, brigade, or division) to cross. If we have a squadron or smaller force, it will be better to dispense with it on account of the time required for construction. In such case it will be advantageous to make use of the means indicated above.

When we use the footbridge to cross large bodies, it is only necessary to direct the leading horse by means of a lance; the others swim freely behind him. However, in such cases there must be means of easily catching up the horses on the other side. The best way is as follows: The squadrons are brought one by one to the place selected for the crossing and commence to unsaddle at once.

The men put on their caps, take off their sabers and attach them to the saddle by means of the stirrup straps, which have been crossed, and the surcingle which holds the whole in place. Divided into groups of three, No. 2 puts the blanket on his head just as it was folded on the horse, hanging his helmet on his arm; then Nos. 1 and 3 put a saddle on his head, which is protected by the blanket. When all the saddles have been carried across, the horses are passed over.

IV.

Load Carried by a Horse While Swimming.

While horses support with difficulty a weight as heavy as their riders over a long stretch, they are nevertheless capable of carrying considerable weight. Thus they support easily and without fatigue the saddle and blanket, without any special preparation. The increased weight which comes from the soaking of the blanket does not produce a perceptible effect. The mess dish with its strap floats of itself and can be left with the saddle as well as the lariat.

But it is not the same with the upper part of the pack. The best swimming horses, if they carry this load, can hardly remain above water more than a minute. The heaviest part of the pack is not near the back, but rather high up. Without support for his feet the horse quickly loses his equilibrium, turns over on one side, and is then a lost horse. Even when brought back to the ground by means of a rope, horses which are brought in turned on their sides get up with difficulty, the pack having absorbed too great a quantity of water. However, it is principally the force of the current that turns over horses swimming with the complete pack. When there is no current a horse can swim a short distance even with the full pack, which really gets soaked only gradually.

A body of cavalry arriving in close order at a stream of considerable depth and width can, therefore, not cross without the aid of boats. Nevertheless, individual troopers, or patrols may cross, taking the precaution to unload their horses and dividing up the pack among their neighbors. It is important that the men should be practiced in making this division as quickly as possible.

V.

Load Carried by the Trooper While Swimming.

A trooper, even with the complete equipment, ought to be able to stay with his horse while crossing a wide river. After some practice he can even be given the lance. Helmet, boots, and saber, seriously embarrass a man abandoned to himself in the water. But if this man holds on to the mane of his horse it is the latter that draws—and without difficulty—the man and his whole equipment. There is no danger until the man quits his mount.

A vigorous swimmer might, even when fully dressed, sustain himself on the surface of the water for some time, without the help of a horse, and swimming obliquely to the current, reach the nearest bank.

However, to avoid the danger resulting from an involuntary separation of a trooper from his horse the exercises may be simplified by taking the following precautions: Take off the boots and suspend them from either side of the pommel, tops down, attach the saber to the cantle, put on a cap instead of the helmet, etc. On the other hand we must practice in doing the following: Sling the carbine, sling passing under the shoulder flap, secure the belt of the cartridge box, put cartridges and explosives into trousers pockets. Of course at exercises of this kind special precautions are to be taken; boats will be in readiness to render assistance, etc.—*Translated from "Revue de Cavalerie," by Lieutenant J. T. Dickman, Third Cavalry.*

THE GERMAN INSTRUCTIONS FOR THE EMPLOYMENT OF CAVALRY IN PIONEERING DUTIES IN THE FIELD.

The manifold duties of cavalry in the field require its training to a high degree of independence. Dependence on the other arms diminishes celerity and surprise, deprives cavalry of the most essential means for obtaining success.

2. The cavalry is expected to be able to destroy railroads, telegraphs, and other communications. As in the presence of the enemy the available time is short, thorough previous instruction is necessary. Repairs will also frequently be found necessary. Ability to perform such work increases the efficiency of the cavalry.

3. This especially in the case of water courses.

4. Of prepared material the cavalry carries folding boats and some bridge materials on wagons. To hasten the crossing of rivers and where folding boats cannot be used, the cavalry must be able to improvise from whatever material may happen to be available.

5. The cavalry must know how to increase the defensive power of a place by the use of the most simple means.

6. In the second half of June or during July one officer or non-commissioned officer from the pioneer battalion is to be attached to each regiment of cavalry as instructor; two or three pioneers may also be attached.

7. All officers and non-commissioned officers of cavalry must familiarize themselves theoretically and practically with the subjects of instruction. Of the men as many as possible should be instructed.

8. The same instruction takes place annually at the military riding school in the second half of June or beginning of July. All officers, non-commissioned officers and lance corporals of cavalry on duty at the school must be instructed. One captain, one lieutenant, four non-commissioned officers, five lance corporals or pioneers from the railroad brigade are placed at the disposal of the riding school for seven days, to give instruction in works of destruction.

For instruction in making repairs, one captain, two lieutenants, eight non-commissioned officers, eight lance corporals or pioneers will be attached to the riding school for eight days.

12. Each cavalry regiment has two folding boats and necessary bridge material. They are to be used in exercises in bridge building, swimming of horses, so that the men may become familiar with handling them. To save these articles as much as possible—they are always to be in a state fit for the field—other boats, etc., should be used in these exercises in addition to the folding boats.

13. Instruction in destroying railroads should be given on railroads themselves after making arrangements with the railroad administration. But in addition there should be a dummy to practice on which would always be available.

14. Dummy track for a regiment consists of three pairs of rails (Fig. 1), one of double-headed rails, the other two of T rails. They are fastened to the sleepers with hook-headed spikes, on sleepers a and b with screw nails. Pairs 2 and 3 meet on a sleeper (supported joint), 1 and 2 between two sleepers (unsupported joint), (Fig. 19 and 20).

The ground on which the dummy track is laid should be carefully leveled, so that the ties will lie horizontal.

For practice with the tools of destruction they should be embedded in gravel or sand (Fig. 2). When rails are to be destroyed by explosives, there is a dangerous zone on each side of 450 meters, and of 350 meters in the direction of the rails. A small piece of track made of old rails is good enough for the purpose. All the materials of the dummy track except the sleepers may be old (a matter of economy). All the holes where spikes have been drawn must be plugged up. When there are too many spike holes near foot of rail the latter may be shifted laterally, changing the gauge, which is, however, immaterial. Rails broken by explosion can be utilized again by smoothing the broken end, etc.

15. *Telegraphs.*—For the instruction of a regiment, six telegraph poles (Fig. 3) are sufficient, three or four of them being ten, the others seven meters long.

Between pole 1 and 4 only one wire need be stretched; between 4 and 6 at least three wires. The uppermost of the wires should be five, the others four mm. thick; the poles to be sunk into the ground one-fourth or one-fifth their length.

16. Every regiment of cavalry is provided annually with fifteen explosive charges, thirty pieces of fuse and thirty caps.

In addition, sixty charges, thirty fuses and fifty caps are allotted to each general command for the use of those troops who are to practice more extensively the destruction by blowing up. Each regiment of cavalry has one set of tools.

II. WORK OF DESTRUCTION.

Means of Destruction.

17. The apparatus consists of the cartridge, fuse, caps, cartridge pouch and pouch for the fuse and caps.

(*a*) Cartridge is a zinc box, soldered all around, filled with 1 kgm. of explosive matter, C:88. Can be stored or transported without danger.

Explosion is effected by strong (fulminating) caps, not inserted in cartridge until the latter is to be used. It is inserted into a short copper tube, opening at top of cartridge case, opening covered by a case of hem-paper sealed on the sides of cartridge case (Fig. 4). Two wires are soldered to top of case, which are wound around fuse to prevent its slipping out after insertion.

(*b*) Fuse about 1 meter long (gutta percha); cap fixed at one end with rubber cement; other end covered with a rubber "muff," containing some loose gun cotton.

(*c*) Caps of copper, charged with 1 g. of fulminate.

(*d*) Cartridges placed four in a leather pouch, standing side by side.

18. Every cavalry regiment carries eight pouches of cartridges and eight of fuses, *i. e.*, altogether thirty-two cartridges, forty fuses and forty extra caps on the folding-boat wagon.

The cavalry division carries on two cavalry ammunition wagons each, fifty-six cartridges and fifty fuses, also fifty extra caps; total, 112 cartridges, 100 fuses and 100 extra caps.

19. Tools for destruction work: One sledge (Fig. 5), one sledge (Fig. 6), two crowbars with claws (Fig. 7), two short claws (Fig. 8), two monkey wrenches (Fig. 9), four screw drivers for screw nails (Fig. 10), six chisels and two handles (Fig. 11), two spades, one pulley with nippers (Fig. 12, *a* and *b*).

Every cavalry division carries two sets of destruction tools on two cavalry ammunition wagons. (The pioneer detachment of a cavalry division consists of one officer, one sergeant, two under officers, twenty-seven pioneers, eight workers in iron, eight workers in wood, four masons and six boatmen.)

20 to 25 describes and names different parts of track. (Fig. 13-23.)

26. *Destruction of Railroads.*—Fig. 24, 25 and 26 show how charge is arranged. Charge is strong enough to blow away a piece of 25 cm. length from the head of the rail. A train may not of necessity be derailed thereby, but still it would be risky for a train to pass over the damaged place. If two cartridges are used, they should not be more than 1 m. apart nor should anything be between them, such as earth, stones; one fuse is used, the second cartridge accurately aligned on first and provided with cap which will be exploded by detonation of first cap and cartridge.

27. At stations the switches and crossings should be attacked. (Fig. 22, 23, 24.)

29. Destruction of curves more difficult to repair.

30. Importance of destroying repair material on hand at the stations along railroad. Wagons taken along to carry away small parts (metal).

31. Derailing train by shifting rails a few centimeters sideward; effective, but can easily be repaired. Appropriate where the wreck can be removed with difficulty.

33. Breaking off heads of fish plate screws, putting two men at each sleeper and throwing track off roadbed, if possible into a marsh or water or down a precipice.

34. *Stations.*—Destroy switches at entrance and exit, also crossings.

35. Destroy water reservoir, pipes and pump used in providing water for the locomotives. Blow up tank, remove essential parts of pump and pieces of pipe.

36. Search round houses and repair shops at once for tools to help in destruction.

37. Locomotives and cars are to be saved and turned over to troops for use; destroyed only to keep them from falling into the hands of the enemy or to block the road.

38. Locomotives and cars rendered useless by destroying one wheel or axle box by explosives or heavy sledge; burning the cars.

Locomotives heated or containing hot water; blow up boiler. Cold locomotives, remove pressure gauge (a Fig. 28, I), head of steam chest (b Fig. 28, II), piston rods, etc. If there is no time for this, knock off all cocks and small outside pipes.

TELEGRAPH LINES.

Over and Under Ground.—Over ground: Cut down wooden poles, blow up iron poles, cut wire with nippers or hatchet. If this cannot be done, draw lariat through pulley by means of the lance, hang it over the arm supporting the insulators, tie a cross stick in bottom of rope and hoist a man to cut wires with nippers.

41. To destroy underground lines, they must first be found and dug up; cut out a piece with a hatchet or blow up with cartridge. Cover up the hole dug and remove all traces of the work.

42. Connect all wires with each other and the iron of the insulators by fine silver wire. Requires trained operators. If the line is to be used later by our own troops, such poles must be accurately located and report made to headquarters. (Fig. 31).

DESTRUCTION OF STRUCTURES.

Arrange charge in cubical shape, with or without tamping. May require several of the fuses furnished to be tied together.

Arrange cartridges accurately aligned for successive detonation by transfer of detonation; cartridges not more than one m. apart. (Fig. 34).

Wooden bridges. Attack piers as near the water as possible;

nail slats on them to align cartridges and transfer detonation. (Fig. 35.)

54 to 70. Mechanical details for destroying bridges, nothing new.

70 to 76. Destruction of guns.

CROSSING OF RIVERS AND REPAIRS MADE BY CAVALRY.

77. Cavalry must be able to cross all water courses even where bridges are not available.

(*a*) By swimming with the assistance of folding and other boats.

(*b*) On ferries or other means improvised from material available.

SWIMMING.

78. Men and baggage are crossed in boats, horses swimming alongside the boats.

80. Patrols gather all boats that can be found, etc.

81. Swimming of horses. First condition that horses be not afraid of deep water. If they have been properly trained, they can be brought up to the boat without trouble.

Almost all horses can swim.

The horses are brought to the boat by swimming men. The men in the boat hold them by the snaffle and close to the boat. The horse's neck must not be pulled in toward the boat; the horse should be able to freely stretch its neck in the direction it is swimming. In front and on both sides good swimmers (horses) should be placed for quieting timid or excited horses. As soon as the swimming horses pull the boat along, the rowers stop. A good steersman is important for uniform swimming.

82. Boats, etc., can be properly directed only if non-commissioned officers and men have had practice. Stress is to be laid on the training of a sufficient number of men in rowing, poling and steering.

83. Loading the packs can be done quickly, provided discipline is strict and improvised means are used. The equipment and pack of each horse should be tied together and put on the boat or other ferriage machine by platoons or ranks; lances to be tied together in bundles.

84. If there is an opportunity of having the men with equipments cross to the other shore by new foot bridges, it is recommended to let the horses swim alongside; a rope tied to the horse is made fast to a pole or lance and the man then conforms to the movements of the swimming horse.

85. In war water courses should not be unsurmountable obstacles for patrols. They must be able to cross them without assistance. For this purpose some swimmers in each squadron (troop) are taught in the peace exercises to swim watercourses not too

wide, in light dress (cap, shoes and carbine) with their horses (without blanket, without pack). The riders must not remain on the horses but swim themselves while holding on to the horses' mane or tail. In war also patrols will remove the horses' packs and leave them when swimming watercourses; they should take off their boots.

86. If in war a body of troops is forced by the enemy to cross a watercourse without any assistance, the riders are to hold on to the mane and tail of the horses.

87. No more time is to be spent on the swimming exercises of the horses than is necessary to accustom them to the water and teach the men what to do.

88. As only such men as can swim can know exactly what to do in bringing the horses to the boats, every squadron is to train as many swimmers as possible. Experience teaches that sometimes even good swimmers suddenly lose courage in the middle of the stream and sink as though paralyzed.

These exercises are invariably under the supervision of an officer who is personally responsible that all due precaution is taken. In a boat, properly manned and provided with undressed swimmers, poles, etc., he remains up stream. Only in such a way can he quickly render assistance in case of accidents.

CROSSING WATERCOURSES BY THE AID OF ARTIFICIAL MEANS.

90. The cavalry folding-boat consists of three parts, whose dimensions are shown in Figs. 55 and 56.

Each part of the boat has a keel, two bottom ribs, two longitudinal ribs and gunwales of elmwood. This frame is covered with canvas inside and out, fastened to the keel, ribs and gunwales with nails.

The several parts are separated from each other by a coat of white lead. The canvas is painted inside and out with Berthon bootlack, and thereby rendered water-tight and flexible.

The bottom is formed by boards 1 cm. thick, fixed sideways on the longitudinal ribs, so that they can be folded toward the center.

When ready for use, the parts of the boat are kept extended by means of iron braces, which are inserted between the bottom board and the gunwale, and are kept from collapsing by automatic locking.

91. To prepare the boat for use, the parts are opened out on land and put together. Putting the two end pieces and the middle piece together makes a boat with three partitions; putting two middle pieces together makes a "Kaffen boat."

92. The parts are put together by hooks and eyes in the keel and two tongues fitting in corresponding places in the partitions, through which a bolt goes, and by two sets of lacings.

When the boat is unfolded, the space between the inner and outer sheet of canvas is filled with air through small apertures in the canvas. It serves to keep the boat afloat even when filled with

water. Folding up is slow, owing to the slow escape of the air from between the two sheets of canvas.

Each end piece has three oar locks, two on the gunwale and one at the end for steering.

Each middle piece has two oar locks.

Plates 93 to 105 show the bridging material, baulks, chesses, etc., which become plain from figures in book.

101. To make the boats into a bridge requires one non-commissioned officer and ten men.

106. To build a foot bridge, each boat is made into two (middle boat and "Kaffen" boat). Men with pack and horse equipments to cross by foot bridge, horses by swimming.

To unfold an end (kaffen) piece requires two, a middle piece, four men. Various combinations of these boats and their use are plain from the illustrations.

The throwing of improvised bridges is very much like what is laid down in the manual in use at the U. S. Infantry and Cavalry School.

140. Repair of roads, fords, ice.

Fill the bad places with stones, gravel, brush or wood. Deep ruts, frozen, fill with sand or manure. Marshy places, wet meadows, etc., rendered passable by bundles of brush, reeds, boards, etc., laid crosswise and covered with sand, earth, etc.

Fords are found by tracing wagon tracks to them, also by use of boats, swimmers, etc. Marked by ropes stretched on poles.

Ice, if clear and resting on surface of water, should have a thickness for infantry in file equal to the width of four fingers, in sections and for cavalry in single file equal to the width of a hand, for all vehicles equal to the span of a hand.

Ice may be strengthened by covering with boards, straw or brush; if cold, by throwing water on it.

PREPARATIONS FOR DEFENSE.

143. In defending terrain, cavalry may, under certain circumstances, use rifle trenches to advantage.

Conditions: Good field of fire; ascertaining ranges by stepping off distances and marking them.

144. Barricading bridges, streets, gates, etc., should be so arranged that they cannot be turned; that they are under effective direct, and if possible, cross-fire.

Use loaded wagons run into each other, furniture, agricultural implements, wire entanglements, lariats strung across the road. More effective to tear up pavement and pile up the stones, or put them in barrels placed in rows.

MANUFACTURE OF SMALL ARM AMMUNITION.

I have been allowed by the committee to choose my own subject for a lecture to-night, and have chosen the manufacture of small arm ammunition for the new .303 rifle, as my object is to endeavor to raise a more general interest in rifle shooting. Drill, pure and simple, on the barrack square is the basis of good discipline, and good discipline, together with good shooting, form the chief factors of success on the battlefield.

a. The Cartridge Case (or Shell).—I will first ask you to note the difference between breech fermeture and obturation. By the first term, breech fermeture, or the means of closing the breech, is meant the block, in the Snider rifle pivoting on a longitudinal axis, in the Martini-Henri rifle pivoting on a transverse axis, or a bolt as in the magazine rifle. This the breech fermeture is a matter for the rifle manufacturers, and I have nothing to say about it to-night.

By the second term, obturation, is meant the means adopted to prevent the escape of powder gas at the junction between the breech fermeture arrangement, block or bolt, and the end of the bore. This point, obturation, was the cause of much difficulty in the early days of breech-loaders, but it was soon realized that in small arms, *i. e.*, rifles, carbines and pistols, it must be effected by means of the cartridge case. (In the artillery service we still have three different methods of obturation not involving a cartridge case.) The old paper cartridges, used originally in B. L. as well as in M. L. rifles, were on this account superseded by metallic cartridge cases; one of the earliest patterns was the metallic case for the English Snider, *i. e.*, converted Enfield.

Until recently there have been two distinct methods of manufacturing metallic cartridge cases—(*a*) rolled case; (*b*) solid-drawn case.

The Snider ammunition hitherto made at Woolwich and Quebec are samples of the rolled case. A brass strip is wound on a mandril to form the case, the base being closed by an iron disc, which is fitted tightly to the case by means of the cap chamber. I have specimens here showing the various stages of manufacture, but I do not propose to spend time in a detailed description, as this pattern is now practically obsolete. It became obsolete because of two important objections: 1st, it was found to give "jams" in the M. H. rifle in 1885 in the Soudan campaign, owing to sand finding its way between the brass folds of the case and thus causing friction against the walls of the chamber; 2nd, the neck is deficient in stiffness and strength and allows the bullets to become loose and shaky; this fault can be very easily seen in the case of mounted infantry carrying their ammunition in bandoliers; a bullet slightly dented or damaged at the point does not materially affect the accuracy of shooting; a loose bullet, on the contrary, has a decidedly detrimental effect.

The latest pattern of M. H. ammunition, and that for the magazine rifle, are examples of the solid-drawn ammunition, introduced

to overcome the two objections just mentioned. Although slightly more expensive, the manufacture is simpler and more accurate than the rolled pattern, as the number of operations is less; the manufacturing limits also are smaller, *i. e.*, there is less variation in the size of different cartridge cases, owing to the method of making the case, by drawing the metal out through a series of dies; provided that the punches and dies used are accurate, the finished product must also be accurate.

A little consideration will readily show you where the manufacturer's difficulties lie in a metallic solid-drawn case. He must use an elastic metal, because on explosion the wall is pushed out against the chamber, and unless the metal is elastic will not again contract; in that case difficulty in extraction follows; on that account brass is now used, although it has other objections, being more elastic than copper, the first metal, used some thirty-five years ago.

(One advantage of the Martini-Henry rolled case was that it tended to unwind at the moment of the explosion and then contracted again, in the same manner as a spiral spring, as soon as the pressure was removed, *i. e.*, as soon as the bullet left the muzzle.)

Again, a second difficulty in the manufacture of solid-drawn ammunition is as follows: Suppose that there is any impurity, say a small particle of grit in the original sheet metal, or suppose that the copper and zinc forming the brass alloy have not properly and uniformly combined; there will then be a small defect, which the system of drawing out tends to convert into a longitudinal fissure; the case will then be liable to give way at this line of weakness on explosion; an escape of gas then takes place, which means that the chamber will be coated with fouling, and possibly the striker clogged and the lock damaged.

For solid-drawn ammunition we must therefore have an elastic metal such as brass, and we must be extremely careful that it is kept absolutely free from impurities during manufacture.

The actual steps of manufacture are as follows:

(Specimens shown.)

If black powder is used it is necessary to varnish the inside of the case, because the action of the saltpetre (in the powder) on the zinc (in the brass of the case) causes the erosion of the latter. In the case of smokeless powder, cordite, this varnishing is unnecessary.

b. Bullet.—The bullet is composed of a pellet enclosed in a metallic envelope. As is also the case with the M. H. bullet, the pellet is not pure lead, but an alloy; .303 bullet, 98 parts lead, 2 parts antimony; M. H. bullet, 92 parts lead, 8 parts tin. The reason that an alloy rather than a pure metal is used, is that alloys are generally harder than the constituent metals of which they are formed, and thus an increased penetration is obtained; a pure lead bullet, such as the Snider, is deformed on impact, and the penetration is small. In the Snider rifle, also, the bullet is of less diameter than the bore, and has to be set up by the explosion into the

grooves in order to take the rifling; a soft metal is therefore necessary; in the .303 rifle it is of a bigger diameter than the bore, and the lands cut into it.

The magazine rifle bullet is enclosed in a metallic envelope; this envelope is an innovation after the Snider and M. H. bullets, and I want to explain its necessity quite shortly. I will state the cause of the necessity first, and then give the explanation afterwards. The reason is, that if you have a high velocity at the muzzle, and wish to maintain the velocity fairly well along the range, you must have a small calibre bullet, and a small calibre bullet necessitates a metallic envelope.

Now for the explanation of the small calibre: If you throw a cricket and a lawn tennis ball, which are of much the same cross-sectional area, with the same initial velocity, we all know that the cricket ball will keep up its velocity better than the lawn tennis ball, because of its greater weight. It is apparent, therefore, that, in order to maintain the initial or muzzle velocity, the bullet should be as heavy as possible.

Again, if you throw a cricket ball and a football, which are of much the same weight, with the same initial velocity, we all know that the cricket ball will again maintain its velocity the better of the two, but on this occasion it is because its cross-sectional area being less it offers less resistance to the air. Combining the results of these two comparisons we see that, in order to maintain its muzzle velocity, *i. e.*, to suffer as little retardation as possible, a bullet should be as small in cross-sectional area and as heavy in weight as possible.

Next, for the explanation of the metallic envelope: Supposing then, that in order to maintain the muzzle velocity, we have determined to have a small calibre bullet, it can be easily worked out mathematically that the smaller the calibre the greater the amount of surface in contact with the bore proportionally to the volume of the bullet, (*i. e.*, if s = surface and v = volume of a .303 bullet and S = surface and V = volume of a M. H. bullet, the ratio s/v is greater than S/V). Consequently there will be proportionally to the volume a greater loss of lead due to friction; this simply means "leading" or "stripping," or both, which induce bad shooting. The official definition of "leading" is as follows: "A barrel is said to be leaded when particles of lead are detached from the bullet as it passes up the bore, and adhere to the lands and grooves." "A bullet is said to strip when it is driven out of the bore and across the lands without following the grooves of the rifle." The metallic envelope, an alloy of copper, 80 p. c., and nickel, 20 p. c., obviates this leading and stripping.

To explain what I have just said I would ask you to consider a big and small ice-house: in the former say a foot of ice next to the walls all round the house is wasted in the summer due to heat; that is only a small fraction of the whole quantity stored there. In a small house if one foot is again wasted it will be a big fraction of what is stored there.

There are three more points I should like to refer to in connection with the bullet: 1st. Why is a high initial or muzzle velocity necessary? The answer to this question is that by means of it, and of the power of a bullet to maintain its velocity, officially defined as its "ranging power," you get the following advantages: greater accuracy, greater penetration, and greater efficiency in covering the ground, because for the same range the bullet is not acted on for such a long time by gravity, *i. e.*, it is not necessary to give the rifle so much elevation, and the bullet does not rise so high in the air. This advantage is sometimes expressed by saying that you get a "flat trajectory," or that the "dangerous zone" is increased; it means that for the longer distance along the range a bullet is within five feet of the ground so much more are the chances increased of hitting a man; for instance, with the magazine rifle at a range of 500 yards, the trajectory never rises five feet above the line of sight.

The second point in connection with the bullet is: "If a heavy bullet is necessary in order to maintain the ranging power, why not increase its weight by increasing its length?" Now the natural way of combining small cross-sectional area with a big weight would be to make the bullet like a knitting needle, that is to increase its length, but it is practically found that for accurate shooting the length of a bullet should not be more than about four times its diameter. (In the artillery service shells are now made as much as five calibres long, to be filled with an high explosive and fired from mortars for the destruction of casemates, magazines, etc., but in this case so sharp a twist of rifling is necessary that, if used with the rifle, it would cause the bullet to "strip," *i. e.*, the bullet would be driven out without following the rifling.)

Also, you cannot unduly increase the weight of the bullet by increasing its length and give a high muzzle velocity as well, because you would get an altogether objectionable "kick" on firing, unless you also increase the weight of the rifle, which is now quite heavy enough. Action and reaction being equal and opposite, the momentum imparted to the bullet is also imparted to the rifle.

I have now endeavored to show that with a high muzzle velocity, say 2,000 feet per second, you must in practice also have a comparatively light bullet, *i. e.*, a small caliber, and a small caliber necessitates a metallic envelope. I would also like you to notice that, the lighter the cartridge the more a soldier can carry.

The third point is: How does the penetrative and stopping power of the .303 bullet compare with the M. H.? Into material, wood, earth, metal, etc., I am not far wrong in saying, from the results of experiments, that the penetrative power of the .303 bullet is to that of the M. H. in the ratio of 3 to 2. In some cases it is decidedly greater. It will penetrate a $\frac{5}{16}$ inch steel plate at forty yards range, and requires an earthen parapet to be three feet thick in order to resist it with certainty. Three feet of pine will be required to keep it out at a short range, but half that thickness will be sufficient at 500 yards. At forty yards it will penetrate two

inches into brick and four and one-half inches into the joints of a wall.

Next, as to the stopping power on a man: It is well known that a large diameter heavy bullet produces a great shock and consequent stopping effect, which is of special importance in fighting with natives at the closest ranges: it was frequently said at the time of the introduction of a small calibre rifle, that its advocates greatly underrated this important feature. The results, however, of experiments seem to show that at a close range, up to about 400 yards, where the velocity has been reduced to about 1,400 f. s., the .303 bullet "sets up" on impact, *i. e.*, there is an explosive action presumably due to the velocity, producing, as in the case of the light bullet of the Express rifle, a shock with the same stopping effect as the heavy bullets of the M. H. or Snider rifles. For long ranges, above 1,600 yards, when the velocity has been reduced to about 725 f. s., there is a "splitting up and tearing effect," presumably due to the rotation of the bullet about its longer axis not being then properly maintained, *i. e.*, the bullet being no longer quite steady in flight. For intermediate ranges I will read the report of some experiments by a Prof. BRUNS on the Belgian Mauser rifle, the weight, diameter and velocity being almost identical with those of the English bullet. "He also showed that at ranges above about 400 yards the small bullet hardly 'sets up' at all, while between that range and 1,600 yards the bullet as a rule makes a wound with a very small passage, with very small apertures at the points of ingress and egress, and with very little shattering of the bones or tearing away of the softer substance. These wounds almost all bear a subcutaneous character, and since the bullet, or parts of it, seldom or never remain in the body, may be readily healed without the formation of matter. As most infantry battles will be fought between the ranges mentioned above, Prof. BRUNS has some justification in calling the small calibre rifle a most humane weapon."

Specimens of bullet shown.

The cannelure in this bullet has a two-fold object: 1st, to receive some bees-wax lubrication. In the case of smokeless, and therefore non-fouling, powders, lubrication is not such an important matter as with black powder cartridges; there is therefore no wax wad as in the M. H. cartridge; nevertheless, in addition to this wax in the cannelure, that portion of the bullet entering the mouth of the case is lubricated; the real object, however, is to form a water-tight joint. The second object of the cannelure is to receive three projections or stabs from the case, which prevent the bullet being driven into the case on to the powder by rough handling.

c. The Wad.—Before speaking of the charge I will refer to the two remaining components of a .303 cartridge—the wad and the primer.

The wad is of stiff brown paper; its object is to prevent any escape of powder-gas over the bullet before the rifling has properly cut into it.

d. The Primer.—The primer consists of a cap, cap composition and anvil. The cap is made of solid-drawn copper, a non-elastic metal, which, being driven by the explosion against the walls of the chamber, remains fast in that position, and does not allow an escape of gas against the striker. The cap composition used for cordite cartridges produces a longer and more powerful, but less violent explosion than that used for black powder cartridges, because cordite is less readily inflammable than black powder. The anvil is made of brass, cut out from sheet metal and stamped to shape. (In the Mark II. cartridge the anvil is not separate, but is formed in the case.)

e. The Charge.—I do not propose to speak at length concerning the chemistry of cordite. It is the subject for a separate lecture, and I have not got time. The important question for us now is: Why was cordite substituted for black gunpowder? The answer is: "Because we wanted a smokeless explosive, and one that, without any increase of maximum pressure, would do more work on the bullet in the bore, and therefore give a higher velocity." The other requirements were that it should be stable under varying climatic conditions, and that it should not be liable to explosion by friction or concussion when handled or in transport.

I will take these requirements *seriatim:* First, smokelessness. Most explosive substances will exhibit two kinds of explosion, according to the initiative they receive. They will detonate (explosion of the first order) under the influence of fulminate of mercury or some other violent explosive, or will deflagrate (explosion of the second order) as in the rapid combustion caused by the ordinary firing of gunpowder. Guncotton is a very good example; when acted on by fulminate of mercury it detonates; when ignited in the air (*i. e.*, not under pressure) by an ordinary cap, it deflagrates. The products of combustion in this case consist exclusively of gases and vapors, whilst those of black gunpowder are largely non-gaseous, even at high temperatures, and are partly deposited as fouling in the bore, and partly distributed in a fine state of division in the gases developed by the explosion, thus producing smoke. As far back as 1867, Sir FREDERICK ABEL, the War Department chemist, carried out experiments with it as a charge for guns and rifles, but there was considerable difficulty in regulating the explosion. He, of course, wanted it to inflagrate, but, owing to its confinement in the chamber and the consequent increase of heat and pressure, there was a liability to detonation, meaning the bursting of the gun. The experiments therefore ceased. Some ten years ago, when the necessity for smokeless powder became absolute, the matter again came forward, and it was found that by mixing guncotton with nitro-glycerine, another high explosive, a smokeless explosive suitable for military weapons, both guns and rifles was produced,—that is the present cordite. To quote from Captain NOBLE, of Lord ARMSTRONG'S Elswick firm: "Although it may seem a paradox, nitro-glycerine and guncotton, (both of which detonate easily alone, or when mixed with inert substances), have no power of detona-

tion when mixed together." The actual percentages of cordite are:

Nitro-glycerine	58 per cent.
Guncotton	37 " "
Mineral jelly	5 " "

Cordite is also found to comply very satisfactorily with the third and fourth requirements, *i. e.*, stability under varying climatic conditions and safety in transport.

With regard to the second requirement—more work from the powder without any increase of the maximum pressure—I think that these two models will give a far better illustration than any long explanation of mine. The first is an old pattern gun, suitable for quick-burning, black gunpowder; it is, therefore, very strong at the breech, because, the powder being converted into gas almost instantaneously, the pressure, when the projectile has only had time to move forward a few inches, is very great at that point, but as the shell goes forward the pressure very rapidly decreases; thus the average pressure throughout the bore is low, and not much work is done on the projectile, which consequently leaves the muzzle with a comparatively low velocity.

"Next, let us look at the second model, suitable for slow-burning powder, such as cordite. The powder is being converted into gas throughout the entire length of the bore. There is no very high pressure at the breech, because no great quantity of the explosive has been converted into gas; there is therefore no need for very thick walls at the breech, and the superfluous metal there is utilized by increasing the length of the bore; there is, however, a moderate pressure, and owing to fresh explosive being continually converted into gas throughout the travel of the projectile, this moderate pressure is sustained fairly well until the projectile leaves the muzzle. The average pressure is therefore greater than in the case of black gunpowder, and further, it acts on the projectile for a much longer distance. The work done and the velocity obtained are consequently vastly increased.

In the Lee-Metford rifle, with cordite the maximum pressure is fifteen tons per square inch, and the muzzle velocity obtained 2,000 f. s.; with black gunpowder, even when compressed into a pellet, as shown in the drawing, in order to lengthen its time of burning, the maximum pressure is about eighteen tons per square inch, and the muzzle velocity only 1,800 f. s.

With regard to the manufacture of cordite, the guncotton, after being dissolved, and the nitro-glycerine when mixed form a gelatinous mass; this is squirted out through a die of any required diameter in the form of a very long cord; it is then wound on drums; sixty cords from these drums are then collected, pushed into the cartridge case and cut off at such a length as to give the necessary weight, 30.5 gn.

I am most anxious that what I have said should not make me appear to be taking the part of an agent for a cordite firm. I only want to lay its properties, good and bad, before you. There are three objections which I have heard raised against it:

1st. The exudation or sweating out of free nitro-glycerine, a high and dangerous explosive, at low temperatures. This, if true, would be a serious objection, especially for this country, but the Ordnance Committee, who are not in any way answerable for its mode of manufacture, after trials in Canada and in refrigerating chambers, definitely state in their report: "Exudation of free nitro-glycerine need not be feared if it is made as at Waltham Abbey."

2d. The second objection I have heard raised in two forms: (*a*) that as experiments are still being carried out with cordite, it shows that the authorities are not satisfied with it, and (*b*) that cordite has been permanently introduced into the service without sufficient preliminary experiments. My answer to these is, that although experiments are constantly being carried out with all kinds of service stores in order to improve them, by far the best proof of any government store is its general use in the service, as that approximates far better to service conditions than any experimental trials under special officers, and also, that there is, as far as I am aware, no store whatever permanently introduced into the service; every store is liable to be improved or entirely changed as soon as a better can be obtained. The authorities simply act on the same lines as any progressive manufacturing firm, whose continual object is to improve the quality of their productions. At the same time I may say that, in spite of the loud protests of rival explosive manufacturers, cordite is giving satisfaction, and no change is probable at present.

The third objection is, I believe, thoroughly valid. The authorities are and have been from the commencement quite aware of it, probably much more so than many of the opponents of cordite realize. It was, however, thought that its other advantages overbalanced this objection, and it was found that for our service it was the best explosive producible. The objection is the high temperature evolved by the combustion of cordite; the heat is advantageous in that it expands the gases, and so increases the force acting on the bullet in the bore, but it is very disadvantageous in that it is a cause of erosion or eating away and consequent wearing out of the metal of the bore. (Specimen shown.)— *Captain C. E. English, R. A., in Canadian Military Institute.*

SOME NOTES ON A FRENCH CAVALRY REGIMENT OF CHASSEURS.

Last December, being in Paris, I was fortunate enough to obtain an introduction to a French general of calvary, who was good enough to allow me to be shown all round a French cavalry regiment of chasseurs. Being much struck with all I saw, on my return to Paris I jotted down everything which I thought might be of interest to brother officers in India. I therefore venture to send them to the United Service Institution for publication in the Maga-

zine. They are only rough notes, and if of interest to anyone, I shall feel that the trouble of making them has been amply repaid to me. They are under the different headings of —

1. Officers.
2. Men.
3. Barracks.
4. Stables.
5. Saddlery.
6. Canteen.
7. Rations.
8. Riding and Schools.
9. Horses.
10. "Voltige."
11. Carbines and Swords.
12. Training of men and horses.

I may commence by saying that I wrote to the general and thanked him for giving me leave to come, and said I intended arriving on a certain day. At the station, on arrival, I found the general himself awaiting me, accompanied by the colonel of the regiment. The general apologized for not being able to ask me to breakfast, as he had just received a telegram to go to Paris, but that, if I would walk up to the barracks, I should find all arrangements made for taking me round. Accordingly, at the barracks, I found the "commandant," (second-in-command) awaiting me, with two or three other officers. They had full instructions to show me anything I might ask to see. The following are the notes I made under the different headings: —

1. *Officers.*—The officers were all exceedingly smart looking. Very well turned out, well cut riding breeches, and perfect figures of horsemen. Those I saw riding all had very good seats. Boots well made and fitting.

2. *Men.*—The men seemed a very sturdy looking lot. The annual batches of recruits had just come in. They came mostly from Normandy and Bretagne. Several squads were at foot drill, and not having been long at it did not look their best. The officers said they were all recruits, but I particularly noticed during my stay in France, principally in Paris, how poor an appearance a French cavalry soldier presents on foot. The monstrous looking overalls they wear, and the almost invariable custom of walking about with their hands in their pockets, probably have a lot to do with their, to English eyes, unsoldierly looking appearance. The contrast between the smartness of the officers and the slovenliness of the men is very marked. The line soldiers, pion pion, looked much smarter.

3. *Barracks.*—The barracks were excellent, large, and well ventilated. The latrines were not good, and were insanitarily placed near the cook-houses. The washing-places were very small for the numbers of men using them. Water, however, was plentiful, and there were fifteen taps for each squadron. The barrack-rooms were very tidy, clean and orderly. The carbines were placed in racks along the walls. Bedding was kept down all day; not rolled up as in our service. The men have their meals in a separate room, which is most excellent from a sanitary point of view; besides the room is available as a place to sit in, and as a lecture room. They called it "salle d'instruction." The "sous officiers" have a small room to themselves, two to one room, very like our sergeants' rooms

in barracks in India. All the barrack-rooms that I saw were particularly well kept, clean and tidy. The "commandant" apologized before going into the first one, saying, "I fear you won't find them prepared for a visit." I replied: "If only every barrack-room one visited unawares was as clean and tidy, what a nice state of affairs it would be." The stables are immediately below the barrack-rooms on the ground floor. Each squadron has, in addition to a separate eating room, a squadron office, where the whole of the office work of the squadron is carried on. There is no regimental orderly room. Squadron storerooms take the place of our regimental quartermaster's stores. In each squadron storeroom is every single article of clothing and equipment ready for issue as fast as men take them away on mobilization, or when recruits come in. The officers told me that a recruit who joined in the morning could go on parade two hours after fully equipped and clothed. This store is entirely under the chef d'escadron. He buys everything according to sealed pattern, and replaces anything required. For this purpose he receives an allowance of thirty centimes, threepence, per man present per day. The whole of his squadron clothing and equipment is under him. Very nice system, too, but I fancy it would require very careful looking after.

4. *Stables.*—Stables large and well ventilated. Horses bedded down all day. The grooming not up to the standard expected of a British cavalry regiment. The horses all had long coats, and in consequence looked the worse for them. The bedding did not look up to much, and its state could not be good for the horses' feet. Six men per squadron were on stable guard. The horses were separated by "bails," an excellent arrangement should a horse get its leg over.

Each horse had a large name board and card, giving year of birth, price paid, where bred, bought, regimental number, rider, etc.

5. *Saddles.*—Saddles were placed behind each horse on trees fixed to the walls. They were not good, and the French officers themselves complained about their age and the impossibility of cleaning them. I saw three different patterns in this smart regiment, mostly English made, and some of them actually bought during the war in 1870!

They looked much too narrow to sit on comfortably in marching order.

The horses' tails were cut shorter than with us, and were somewhat ragged. The day of the visit was a pouring wet day, which may have made the bedding, and the state of the saddlery, look worse than usual! Horses seemed very quiet in the stable.

6. *Canteens.*—Squadron canteens. Very small, but very comfortable, clean and tidy. The cercle des sous officiers, (sergeants' mess) was particularly comfortable looking.

7. *Rations.*—I saw these being cut up. French soldiers certainly get an excellent ration. Meat seemed first class, and the bread as good when tasted as any to be got in any private house in

Paris. I was shown the weekly menu, and was quite surprised at the excellent fare provided. On saying so, I was told how very much rations had improved of late years. The fare provided seemed to me quite as good as, if not better than, what our men get.

The cooking arrangements in the kitchens, too, were excellent. The fires were supplied and fed from a small room at the back of the kitchens, so that in the latter no coal, coke, wood or anything could contaminate or dirty the rations.

8. *Riding.*—I saw several rides. Some of the riders had only a few days' service, and it speaks volumes for the training of the horses that these men rode so well. An officer was superintending each ride. This goes on all day, but there are nine officers per squadron. In Paris I saw a lot of cavalrymen, and I was particularly struck with the way they sat their horses. I must have seen some hundreds of officers riding about in Paris. With few exceptions, they certainly knew how to sit on a horse. The riding-school was a very large building, big enough for a large musical ride. I noticed no "marks" anywhere. The rides were mostly trotting or walking. Not much attention was paid to regular pace or distances. All the men wear Wellington boots, with straight box-spurs. All were riding on the bridoon, and some pulled their horses heads about a bit.

9. *Horses.*—Horses, or rather remounts, all arrive on a regular fixed date yearly. They come at between four and five years old. The first year they are kept at light work for short periods of time. The second year, having got thoroughly accustomed to what I may call barrack-life, they are gradually trained in the riding-schools and taken out exercising on the drill grounds; at the age of *seven* taken into the ranks. Imagine how docile all the horses are. They looked a useful lot, but a bit heavy and under-bred and not up to much pace. The officers told me that they were not. I might mention here that I happened to see a moving photograph of a French cavalry regiment charging. Judging from the photograph, the pace seemed very slow, and when the troops halted they were all very much opened out. Unless readers have seen this new moving photography they may scoff at my remarks, and say that the pace looked slow because is was only a photograph. I saw, however, when at home a photograph of the Derby, and the pace looked perfectly correct in that!

10. "*Voltige.*"—An exercise I saw the recruits doing struck me as a particularly useful and practical one, *viz:* "voltige." In a large open shed, three squads of men were drawn up. Three horses, one in front of each squad. In front of, say, squad A, a horse is longed round like in a circus. Each man in squad A in turn runs alongside the horse and vaults on and off it, then vaulting on again rides a couple of times round the ring with arms crossed. Excellent practice for giving men confidence, perfectly safe, and all the men seemed to thoroughly enjoy it. Opposite squad B the horse is standing in front of the squad held by the instructor. Each man runs up and vaults on to it like the horse in a gymnasium. Opposite squad C is

a third horse, and each man vaults sideways on to this like the horse in a gymnasium from near side to off side, and *vice versâ*. I was specially struck with this "voltige."

11. *Carbines and Swords.*—Lebel carbines. I wasn't impressed with them. Huge bolts on right hand side. Three cartridges in magazine. They seemed heavy and clumsy weapons. The men always carried them slung, and have no carbine buckets. The sword seemed very good; long, very slightly curved, well balanced. Good weapons for pointing with.

12. *Training of Men and Horses.*—Squadron officers are entirely responsible for training their remounts and recruits—admirable of course in theory and practice, but impossible with native cavalry in India. In France recruits and remounts all arrive *once* a year on a regular fixed date. With us recruits and remounts come at all times.

In conclusion, I cannot speak too highly of the courtesy shown by the French officers to me, and it would surprise many to learn how very good French cavalry are, and how different from reality are our prevailing notions respecting them.

"THE NILE CATARACTS."

Among all the rivers of the world the Nile may fairly claim to be the most celebrated. Its name goes back in the history of man further than that of any other river; in fact it was long known by the simple appellation of "river." When people wished to speak of other rivers they put names to them, as the River Jordan, the River Tiber, just as to-day, when Western Americans desire to specify various wines they say port wine, or sherry wine, or Madeira wine, but when they invite you to take champagne they simply call it "wine"; the illustration may appear somewhat wanting in dignity, and perhaps I should apologize for using it.

Nor, if we reflect a moment on the nature of the Nile, as compared with any other river that is known to us, can we wonder at its celebrity among the early nations of the Mediterranean. 2,500 years ago Herodotus wrote that "Egypt was a present from the Nile." That was literally and soberly true. Not only has Egypt been made out of the sand and silt of the Nile, but Egypt owes its yearly, its daily, life to the continuance of that river.

Take away this life-giving water even for a single year, and man, beast, bird, fish, must disappear. It is this one principle of life, made always present through every sense to man in Egypt, that gives to it a meaning of home, food, and even raiment, which is nowhere else found associated into a single object, but is in other lands divided or diffused over a hundred objects. Nor is that all—everywhere else in Egypt, except where the Nile water flows, man sees the evidences of pitiless surroundings; the sun blazes above him, the desert is on every side of him, the wind often comes with the

furnace breath of the hot and fevered wastes, the sky is almost rainless, these things are death. It is the Nile alone, by its never failing munificence, gives life and shade, and sustenance to every living thing.

But "the present of Egypt," which the old historian said the Nile had given, has meant a good deal more to man than the length and breadth of the land that is watered by the river. It has meant his earliest civilization, his first conception of the arts and sciences, his laws, his knowledge of justice. This river has been the cradle of human thought. Rome borrowed from Greece, Greece from Egypt, and Egypt found in the waters and mystery of the river the fount of her inspiration. I say the mystery of the river, for the things which are regarded by us in the light of peculiar characteristics were, to the ancients, mysterious.

And yet the ancients knew a great deal about the Nile which we have only recently found out. They placed the sources of the river in the 10th degree of south latitude in a range of mountains which they called the Mountains of the Moon, but about 200 or 300 years ago, the child of that period, who had not a long time before become possessed of a new toy which he called type, or printing, imagined he could teach his parents many things, and among this new-found knowledge was the source of the Nile, which he fixed in the 12th degree of north latitude, cutting off at once about 1,500 miles or so of the river's length; but, as you know, the experience of recent travellers have set back the sources of the river, and its furthest south is now supposed to lie in about the 4th degree of south latitude, not so distant from where the old geographers declared it to be. Again, in the matter of cataracts, the modern world having found Niagara and other great waterfalls in the western world, began to pooh-pooh the cataracts of the Nile, declaring them to have been much overrated; but if we examine what the ancients really did write about the Nile cataracts, we find that there was no exaggeration whatever either as to the volume of water or the steepness of the obstacle. Seneca thus wrote of the Nile cataracts:—

"This river, which at first glided smoothly along the vast deserts of Ethiopia, before it enters Egypt, passes the cataracts. Growing on a sudden contrary to its nature, raging and violent in those places where it is pent up and restrained, after having at last broken through all obstacles in its way, it precipitates itself from the top of some rocks with so loud a noise that it is heard three leagues off.

"The inhabitants of the country accustomed by long practice to this sport, exhibit here a spectacle to travellers that is more terrifying than diverting. Two of them go into a little boat, the one to guide, the other to throw out the water. After having long sustained the violence of the raging waves by managing their boat very dexterously, they suffer themselves to be carried away by the torrent as swift as an arrow. The affrighted spectator imagines they are going to be swallowed up in the precipice down which they fall, when the Nile, restored to its natural course, discovers them again at a considerable distance on its smooth and calm waters."

Here then we have an exact picture of a Nile cataract. They are slants of water down which, amid all the fury and turmoil of the raging river, a boat can live.

Neither is the force and violence with which the pent torrent rushes down these rocky slopes at all exaggerated.

It is difficult to imagine a more resistless impression of water power than that which is to be seen at any of the Bab el Kebirs or Big Gates of the cataracts between Wady Halfa and Dongola, and still more in the long series which intervene between Dongola and Abu Hamed.

But whether the ancients were, or were not, extravagant in their ideas of the dangers of the cataracts, there can be little doubt that they understood the uses to which the Nile could be put better than we understand them to-day.

All the wonders of old Egypt were the work of the Nile; the pyramids were built by the river, and could not have been possible without it; the gigantic stones were hewn by the shores of the river when it was low, and floated on rafts to the site of the colossal works when the water rose in the inundation. The obelisks which now adorn the squares and central places of the capitals of the world were quarried at Assouan, on the edge of the first cataracts, and thence floated off to Thebes, to Memphis or the Delta. The cities of Egypt, even as late as the fifth century before our era, were reckoned at 20,000. Alexandria, under the PTOLOMIES, had a population of 2,000,000 souls; the Egyptian army numbered 200,000 infantry, 40,000 cavalry, 300 elephants and 200 chariots. In the navy, which numbered 112 vessels of the largest class, there was one ship which was 420 feet in length and forty-five feet in beam. But perhaps the most extraordinary proof of the greatness of old Egypt, and of the sense of justice which pervaded her governing powers and financial authorities, was the fact, which we are told on the authority of a most veracious Roman historian, that the daily pay of an officer in the Egyptian army was £3 17s. 7d.; unfortunately, we are still in the dark as to what his mess and wine bills may have been.

Well, although this magnificence and opulence has long ago vanished, and Egypt has become the mightiest ruin on the earth, there are still connected with the Nile so many strange facts and peculiar phases that make it still what a learned French historian described it 150 years ago, "a wonder so astonishing in itself that it has been the object of the curiosity and admiration of the learned in all ages."

Dealing with it in its physical aspect, we are struck with certain facts which mark it as different from other rivers. It had once seven mouths, now it has only two, and although these mouths have been longer known to man than those of any other river, it is doubtful whether the real source of the extreme head has yet been discovered.

The river in its general course has few bends, usually pursuing a channel, which is visible for miles in immense reaches; but it has the biggest bend of any river, flowing almost back upon its original course at Abu Hamed to Debbah, where it again turns north; but perhaps its strangest feature is that for the last 1,800 miles of its course, the further it is ascended the larger it becomes, and that peculiarity is easily explained. In that last 1,800 miles of its course it receives no tributary stream; it flows, in fact, through a rainless region, but all the way through that desert region it is losing water; the sand and the sun are sucking it out of the broad channel, and by the time it reaches Egypt it has nearly lost one out of every three gallons which it held at Berber. It still has sufficient volume, however, to pour past Cairo a total current which is estimated, roughly speaking, at one hundred billions of tons of water in the year, the largest aggregate of water being in the month of October, when about twenty billion tons flow by Cairo, and the smallest in June, when one billion five hundred million tons pass in the month. But perhaps more curious are the figures dealing with the proportions of solids in suspension in the water; these have been very carefully measured and found to give a total of fifty million tons of most fertilizing substances in one year, the largest amount being in the month of August, when twenty-three million tons are carried down to the Delta. In addition to these enormous quantities of fertilizing matter, the river has in solution a further quantity of fifteen million tons. Up to the time of MEHEMET ALI the flood water of the Nile passing the banks of the river overlay the whole surface of the Delta for about 100 days, or say during August, September and October, but MEHEMIT ALI began a system which has since been continued. It was to confine the main stream, in the season of flood, to its banks, and lead off the water through a vast network of canals through the Delta, the water from which would be regulated and let out to irrigate the land, but not to flood it. It has been said that this was a totally new system of watering in the annals of Egypt, but I am not so certain of that, for we read in the Bible, when dealing with the Exodus, these words addressed to the Israelites: "The land whither thou goest in to possess it is not as the land of Egypt from whence ye came out, where thou sowest the seed, and watereth with thy foot as a garden of herbs, but the land whither ye go to possess is a land of hills and valleys, and drinketh the water of the rain of heaven." To-day you may still see throughout the Delta the fellah watering the ground with his foot, opening and closing the mud barrier of the irrigation channel which carries the water from the canal to his fields.

Before I pass from the subject of the annual inundation of the Nile, I would mention that I once met a man who had traveled some 1,500 miles along the river before he found out that the inundation was an event of yearly occurrence. He had before imagined, he said, that it took place every two years. "The crane and the swallow observe time," says an Arabic proverb; there are some men, clearly, who would not do either as cranes or swallows.

And now it will be time to turn from the Nile of Egypt to the Nile of the Cataracts.

And first let us briefly describe a cataract. The general stone of the desert is grey sandstone, which in the lapse of ages has yielded to the action of the water, and has become hollowed out into a river channel of more or less depth and regularity. But first at Assuan, then above Halfa, and above that again, recurring at frequent intervals, ridges of granite crop up through the sandstone desert, crossing the bed of the Nile, and producing a ridge, or series of ridges and rocks, in the channel of the river; these obstacles sometimes extend over miles of continuous water, at other places they are short and abrupt, and immediately above and below them the river is smooth and navigable. But however they may differ as to length and nature, the rock that makes them is always granite, sometimes black, as at the second cataract, sometimes red, as at the first cataract, sometimes of green color. Worn smooth by the action of the water, the sides of these cataract rocks are polished as a marble chimney-piece, and their teeth-like ridges below the water are dangerous to any craft that touches them. When the Nile is in flood it runs with tremendous force, but comparative smoothness, down these rugged stairways, but, as the waters subside, the rocks begin to show their heads, the angle of descent becomes steeper, and channels of broken water begin to show themselves where, before, the river from shore to shore had been an unbroken volume; then is reached the stage of water which is easier of ascent to a small boat, but more difficult of descent; for a small boat, propelled by oars or poles, or moved by sails, or dragged by tow ropes, can in these lower stages zig-zag from rock to rock, or eddy to eddy, while the force of the current is not so determined and continuous against her, but in descent it is the other way; when the Nile is in full flood it has submerged almost all rocks beneath its waves, and the boat, left to the current, is swept along the broad river with great velocity, but with the safety to which the Roman philosopher, already quoted, has borne testimony.

It is at the second cataract, immediately south of Wady Halfa, that the real impediments to the navigation of the Nile begin. This cataract is some nine miles in length, having a total descent of about 60 feet in that distance.

It undoubtedly forms the most serious interruption to traffic in the entire distance between Wady Halfa and Dongola. There are ten "gates," or bad bits in its length, and of these the "Bab-el-Kebir" is a very formidable obstacle.

Twenty-six miles further south is the cataract of Semmeh, the old frontier of Egypt in the reign of Thothmes. A very striking scene it is.

The mountains closely approach the bank on either side, and on the summit of each overhanging cliff stands a ruined temple. Beneath these bordering rocks the river pours its volume, here pent to narrow limits between a great barrier of rock midway in the channel and the eastern and western shores.

From the summit of the ruin-crowned cliff on the east shore the eye ranges far over the wilderness of the Batn el Hagr—"The Womb of Rocks"—a region which for 60 miles presents on every side the extreme aspect of desert desolation.

In these 60 miles occur the large cataracts of Ambigol, Tangoor, and Dal, besides many smaller rapids, or "shillals," as the Arabs call them, places where the river makes a noise. Once the cataract of Dal is passed there is no serious obstacle until Kaiber is reached, and that crossed, there remains only the bad water of Shaban, and the so-called third cataract, to be overcome, until the open river 40 miles below Dongola is reached. This third cataract is, in reality, the seventh of importance counting from Wady Halfa. I have gone up and down it many times, and can safely say that as an obstacle to navigation it is not of greater magnitude than at least three of those which intervene between it and the second cataract at Wady Halfa. The progress of the railway, however, to Abu Fatmeh, at the head of the so-called third cataract, will obviate all necessity for using the river between Wady Halfa and Dongola, and will enable men and stores to be conveyed in two days over a tract of country which took an average of about twenty days to accomplish in the expedition of 1884.

Arrived at Abu Fatmeh, we begin an unbroken stretch of navigation which extends through the entire province of Dongola, and into the next province of Shagghiea for fully 220 miles.

And here at Abu Fatmeh it will be well to devote a few words to the people and products of the land we have now reached, the province of Dongola.

The Dongolavi, or Dangala, are of a race distinct from the people of Egypt, the old Nubian race, dark skinned, and straight haired, the true Ethiopian, whose family is still to be found in all its pristine vigor, and warlike prowess, amid the mountains of Abyssinia. This race, in its Nubian representation, has undergone a sad deterioration since its conquest by the Arabs some 400 years ago. Indeed, it may be said that the riverain population along the whole course of the Nile from Wady Halfa to Berber are marked by the same dishonest, unstable, cruel characteristics. This Nile has for hundreds of years been the high road of slavery; the Dongolavi has been the middleman, the "gillab," the slave trader; first Christian, then mixed Moslem and Christian, then wholly Moslem, he has always been a trafficker in human flesh, a drunkard, and a liar. In addition to these traits, successive waves of conquest and years of subjection have now made him an arrant coward. As to the products of the land, they are those of Egypt, but of very limited quantities; the Nile only inundates a narrow patch of level land, sometimes on one side of the river, sometimes on the other, rarely upon both sides at the same time. Undoubtedly, in the old days the cultivated extent was much wider than it is at present, and undoubtedly, too, the population must, at some period not more remote than 400 years, have been immensely in excess of its existing number. Dongola is to-day a land of ruin and sand-drift; there is no

country in the world in which the tax collector can pursue his calling with so much ease as in Dongola: a boat on the river and a few Bashi Bazook tax-gatherers on either bank enable these narrow shreds of cultivation to be quickly gleaned of food or money. I have seen a Bashi Bazook tax-collector of the former Mudir of Dongola coolly firing his loaded rifle into a village at the opposite side of the river simply to hasten the inhabitants at their work of bringing the ferry boat across to him. It was also not an uncommon custom of these guardians of public order to raid a village, carry off all the women, and then sell them back to their male relations again. There has been a good deal of excitement over the manner in which the Turkish government in Armenia has carried on its authority during the last few years, but I doubt if it has very much differed in any portion of its dominions, or to any particular tribe of people within them, and there is this to be said, that the idea of government, or authority, or taxation, call it what you will, is pretty much alike in the East. When the order for the withdrawal of the English army of the Nile expedition reached Dongola in May, 1885, I received at the advanced post at Merawe, 200 miles beyond Dongola, in the country of the Shagghiea Arabs, a telegram from the chief of the staff directing me to confer upon a certain MOHAMMED WAD GANAISH, the position of governor of the district. This man had been known, with so many others, to be exceedingly doubtful in his allegiance to the Egyptian government, but he was of the race of the old Maleks, or kings of the Shagghiea, in that part of the country, and it was deemed better to make some attempt at establishing rulership, than to abandon the land to the complete confusion of there being "no king in Israel." I sent a message to WAD GANAISH and received an answer that he was ill of fever, and would come when able to travel. In a day or two he arrived, with a dozen or so followers, all mounted on excellent trotting camels; the conference began, GANAISH being supported by an attendant as he was still suffering from fever. I briefly explained the wishes of the government in relation to him; he was to rule the country as Hakeem, a grade in Eastern life below that of Malek, and above that of Sheikh. When I had finished he spoke his mind. "Government was a great and good thing," he said. "He would undertake the work of ruling the country of Merawi according to custom. By right of birth and parentage it was his place to do so, for his father had cut off heads, his grandfather had cut off heads, it had always been the peculiar privilege of his ancestors to cut off heads, and he, WAD GANAISH, was fully prepared to go on cutting off heads." That was all; we marched next morning from Merawi.

I am not at all sure that if we were to settle permanently in these parts we would not, sooner or later, approximate in our ideas of life to the people who dwell there. The man who, of all men, best knew the races of the East, was of the same opinion. "Residence in these Oriental lands," wrote CHARLES GORDON, "tends, after a time, to blunt one's sensibilities of right and justice, and therefore the necessity of men to return after a time to their own lands to reimbibe the old

ideas again. The varnish of civilized life is very thin and superficial—man does not know what he is capable of in circumstances of this sort."

Quite sure am I that we should change our natures sooner than the Arabs or Sudanese would change theirs. And I will tell you why I think so. At Korti, in 1884, I was given an interpreter, one GEMAUL GHENDI by name. His history was a curious one. Twenty or more years earlier he had been taken by an English lady traveling on the Nile from his native village near Korosko. He was then six years of age; his brother, a year older, had just been devoured by a crocodile, and his mother, by no means averse to a further reduction in her family, had very willingly consented to give him to this rich English lady, for a consideration; so the imp was taken and brought to England, where he was put to school, educated with all care, and finally blossomed out into a page boy to the lady who had taken pity on him. When he grew older he became valet to his master, was taken to travel through Europe, and rapidly learned French, German and Italian. He was regarded as a marvel of civilization. Here at last was an Ethiopian who had changed, if not his skin, certainly his habits. He was presented to the emperor of Austria, the Pope had spoken to him, everybody said he was a first-class linguist; he understood all the duties of a personal attendant; to say that he rode well, and shot accurately, was only to say that he was a Barabera. Well, when this man joined me, I, too, was delighted with him; he was everything at once. He waited, made one's bed, rode always near, and was a first rate shot—no small advantage where cartridges were very scarce—and would stalk a lot of doves on a tree, until, getting half-a-dozen in a line, he could secure with a single cartridge, a change of course for dinner from the eternal tinned beef of America, even sufficient for four persons.

One day, astonished alike at the versatility of his genius and the record of his triumphant career through half the capitals of Europe, and before so many of the crowned heads, I asked him how it happened that he had come back to the Soudan again in the capacity of interpreter. He replied that he had come for the sake of the sport which he understood was to be had with large game on the Nile, that he had left a wife in Vienna who was connected with a circus and traveling menagerie business, and that he hoped to return to Austria when the war was over. Indeed among capitals, Vienna seemed always to be his favorite, and speaking of sport, he invariably expressed a preference for grouse driving.

When the expedition returned to Wady Halfa I took a short leave of absence to England before assuming the command at that station; but before starting from Halfa, I confided my horse, camel, and donkey to the care of GEMAUL GHENDI, who had also charge of an escaped slave who had joined us en route from Merawi, and about whom GEMAUL had professed philanthrophic views, which, had he delivered them before an English audience, must have proved highly remunerative.

In two months, I was back again at Wady Halfa. GEMAUL

GHENDI was nowhere to be found, neither were my horse or donkey; the camel was discovered in an emaciated condition in the transport lines; the escaped slave had disappeared. After a while a native turned up who volunteered the information that he knew of the whereabouts of GEMAUL. He had not gone to Vienna, he was at a village about 100 miles lower down the river near Korosko. I wrote to this village, but could obtain no answer. Then I communicated with the commandant of Korosko, asking him to send a patrol of police to the village indicated, there to arrest one GEMAUL GHENDI, an interpreter. A week later, the escort arrived at Wady Halfa with their prisoner, but what a prisoner they had brought. Not my well-known interpreter, guide and philosopher, in neat European dress, but a mean-looking native in blue gallabeah and large white turban, with shaven face and shuffling gait. What a stupid mistake they had made! But, as I looked longer and closer, it dawned upon me that this Nubian native was no other than my late sportsman, my intelligent traveler, my excellent valet, my incomparable GHENDI! It was even so, and then, the rude awakening that came to me! He had gone back at one fell swoop to his original village, flung off his neat suit of European clothing, put on all the outward marks and tokens of Ethiopic Mohammedism, sold my large Egyptian donkey, treated the escaped slave in the same fashion, and was now the proprietor of a small sakeeyah and a large harem in the same spot from which he had been taken as an infant five-and-twenty years before.

There is a proverb in the Soudan which says that "Arab's blood and Turk's blood will never boil together." Still less, I think, will the east and west amalgamate their ideas or their civilizations. The ramparts of race are not to be thrown down by the whistle of the steam engine, but it is just possible that the engine may burst her boiler in attempting the operation.

Meanwhile, we have some distance to travel in our paper, and we must proceed with our Nile notes.

In its course through the province of Dongola, the Nile begins or ends, as we take the stream up or down, its great bend at Debbeh.

From Debbeh to Khartoum by desert is 220 miles, but by river it is 570 miles. The yellow sands again border the stream for a considerable distance, and palm trees, except at rare intervals, have disappeared. The islands, however, and they are numerous, are always rich in cultivation. This bend of the river marked the old boundaries between the Dongolavi or Nubians, and the Shagghiea Arabs, one of the most celebrated tribes on the Nile, before the era of the Turkish conquest, and before we pass on our way, we may say a few words about them.

The Shagghiea speak only Arabic, and they speak it well, while their neighbors, the people of Dongola, speak Nubian and Arabic, the latter indifferently. The Shagghiea are undoubtedly of pure Arab blood; they have been settled on this portion of the Nile for ages, and were probably some of the earliest Arabs who, penetrat-

ing from the Red Sea, ended the kingdom of Nubia above the cataracts. But their warlike days ceased when the son of MEHEMET ALI conquered the country in 1820. It is curious to compare the account of that campaign with our own experience of the manner in which the tribes fought at Souakim, and on the Nile. The same headlong rush of spearmen, the same disdain of firm-arm and wound, the same necessity for square formation; one change, however, the sixty or seventy years had brought about. In 1820, the Dongola horse was to be found in large numbers along this part of the Nile; he is now a rare animal. The Turk soon found that the mounted Shagghiea was too nimble a foe for their lazy methods; so they proceeded to destroy the horse wherever they found him.

The breed of horses called Dongola is a distinct one, and of extraordinary hardiness. They are of larger size than the Syrian Arab in use in Egypt, they have white faces, and, nearly always, four white stockings; but the best have three; the mouth is hard almost as the bit in it, the roughest ground seems able to offer no impediment to their speed, and a Shagghiea Arab is as thoroughly at home on their backs as any rider in the world. One feat these Shagghiea were in the habit of performing with their horses, which was almost peculiar to them: they were accustomed to swim these hardy little horses across the broadest parts of the Nile by day or night in any stage of water. It was this power that made them such formidable raiders in the ages preceding the Turkish conquest, and the islands in mid-channel, with three-quarters of a mile of water running swiftly on either side, were almost as liable to ravage at their hands as were the villages on the mainland.

As we approach the upper end of the two hundred miles of good water between the two great series of cataracts, a remarkable steep sided and flat topped hill becomes visible on the proper right bank of the Nile. This is Gibil il Barkal of the Arabs. At its foot, and between it and the river, the ground is encumbered with immense ruins, prostrate columns, the debris of great temples, sphinxes, etc. On the ridge of the desert, behind the hill, are many pyramids still in excellent preservation; the entire scene is a very striking one — here, 1,500 miles from the Mediterranean, the evidences of a remote civilization are everywhere to be seen.

This place was, in fact, the chief centre of Ethiopian power in the earliest recorded ages. Here stood the city of Nepata, the residence of Queen CANDACE, and probably of the Queen of Sheba. There is still a village on the river bank, close by, that bears the name of Shibbeh. In the days of the Shagghiea it was the residence of the magicians of the tribe, whose amulets were supposed to protect the wearer from bullets in battle; but, after the action near Korti, where so many of the Shagghiea fell under the fire of the Turkish guns, the first act of the retreating Arabs was to kill all their magicians.

Ten miles above Gibil Barkal begins once more the troubled water of cataracts, a series of rapids in every aspect more formidable than that which lies between Wady Halfa and Dongola.

For 150 miles above this point, the Nile still keeps the great bend to the north which it began at Debbeh, but throughout the greater portion of that distance it is a river rent by rocks, foaming through many channels, seldom held as a single stream between its banks, but filled with large rocky islands which sometimes overlap each other in mid channel, so that between the proper east shore and west there will frequently be three or four islands lying one behind the other, many of them being from five to ten miles in length, and all filled with precipitous rocks and rugged hills of considerable elevation. Winding among these rugged islands, the river pours its flood through channels as filled with enormous rocks as the shores and islands are themselves encumbered with the same granite masses. No wilder scene can be imagined than this waste called Dar Monassir. For miles together there is no vestige of vegetation; silence is broken only by the noise of the foaming waters; the rocks left bare by the subsiding current, and black and polished by sand and sun; whenever it is possible to climb one of the rugged hills on either shore, the eye ranges only over a wilder area of desolation, burnt and cindery rocks rise up in every direction, from amid wastes of sand. At times the channels of the river are so sunken beneath the level of the granite wilderness around, that they are perfectly hidden from sight at only a short distance from the shore. At intervals the islands disappear, the river flows gently in a single stream between shores of black granite, as though its waters were resting between the cataract behind and the next in front; but these bits of comparatively smooth water are few, and taking the entire stream from the fourth cataract at Owli to the head of the island of Sherri, a distance of about sixty miles of water, there cannot be less than twenty-five miles of actual cataract. Up to a recent period, in fact up to the boat expedition of 1884–5, little or nothing was known about these cataracts of Monassir. This was owing to the fact that they had always been avoided by travelers passing between Egypt and the Soudan; the caravans invariably quitting the Nile at Korti, and striking it again across the Bayouda at Metemmeh or Berber.

But, that they were passable at the height of inundation, was proved by the fact that, in the late sixties, or early seventies, two steamers had been taken up at high Nile from Dongola to Khartoum. It was this fact which was, doubtless, in GORDON's mind, when, in his journal at Khartoum he wrote:—"That there was only one small cataract to pass between Abu Hamed and Merowe, which is, by all accounts, an easy one."

As a matter of fact that very portion of the river is the most obstructed by cataracts of any, in its entire length; but perhaps these misconceptions regarding its true nature are the most conclusive proof that it was an unknown region. In looking for, or thinking of the source of the great river, the explorer and the mapmaker had alike forgotten the central portion of the stream where it pours its pent waters down the winding stairways of Dar Monassir.

Passing the cataracts of Owli, Kab el Abd, Umahboa, Rahami, Uss, Shoar, and Sharrari, we emerge at last into quieter water, where the Nile once more, held in a single channel, and having sand instead of granite rock on its shores, flows past a small group of palms, and half-a-dozen mud huts called Hebeh. There is a small island, El Kun, opposite the group of huts, divided from the right bank of the river by a channel which is dry at low Nile. All around spreads a desert of yellow sand and gray rock through which conical hills, whiter than the prevailing color of the plains, abruptly show themselves.

It was between the little island of El Kun and the right bank of the river that the steamer "Abbas," sent by General GORDON in September, 1884, with such precious freight of man and manuscript, was wrecked; and it was in the wretched group of mud huts on the shore that Colonel STEWART, the French and English Consuls, and their servants, were treacherously cut to pieces by the Monassir Arabs.

We are here at Hebeh more than 1000 feet above the level of the sea. The desert is still all drift and desolation, yet, that at some period it must have been otherwise, is shown by the massive ruins of old castles found at intervals along the shores; two in particular, built at El Kab at each side of the river, of immense strength.

The regular courses of masonry, the burnt bricks of best workmanship built into the well designed walls, the stairways to towers and flanking defenses, all told of some period of civilization and organized community, very different from the nomad tribes that now roamed this world of drift sand.

Thirty miles above El Kab, the Nile turns off once more to the north at Abu Hamed; at this turn is the second largest island in the river's length, the island of Mograt, more than twenty miles long. The western extemity of Mograt was the extreme point reached by the advanced guard of the river column on the 24th of February, 1885, the day upon which the order to retire over the cataracts reached the column.

On that day 215 boats were assembled at Huella at the end of the Monassir country, carrying 3000 soldiers. All the worst troubles seemed to be past, exactly that day month 217 boats had left the foot of the Fourth Cataract at Owli, 215 had gained the head of the hitherto impassable cataracts of Dar Monassir, and there were still nearly sixty days' food in the boats for the entire force.

From Abu Hamid to Berber is 130 miles. In that distance there occur two cataracts, that of "El Baggada," or the "Cows," at fifty miles, and again the "Shellal el Umar," or "rapid of the wild asses," at eighty miles distance. Then comes the town of Berber, from whence it is 200 miles to Khartoum, with a single rapid, that of the Shablouka, intervening.

This cataract of the Shablouka is sometimes for some unexplained reason called the Sixth Cataract, whereas in reality it is the nineteenth.

And now, at the top of the cataracts, it is time to say a word about the life, other than human, which is to be met along the arid waste we have traversed.

Limited though it be, it still bears the stamp of the river which has given it life. The camel, the oldests of all the beasts of burden, greatest helper of man in the wilderness, is, of animals, the one most frequently in sight on the shores. In spite of all that has been said and written about him, it is doubtful if justice has ever been done to him. To the western he is uncouth, rough, ill-natured, repellent, ugly; even the Arab, in his tradition of the creation of animals, declares, with reference to the first camel, that "The Lord Himself was greatly surprised at the creature he had made." But that is only of outward shape and form. No other beast known to man is so useful to him, food, raiment, transport, these he gives, and if he gives them grudgingly we must remember that he is the oldest slave on earth, and that his very deformities of structure are supposed, by the best naturalists, to have been the slowly gathered inheritances of the immense time during which he has been the slave of man.

"There is a look about a camel," wrote an English officer from the Sudan, "which always gives me the idea that he is going a long way off." It is true, and he has come a long way, too. How many millions of desert miles has the camel traveled since that far off day when we read that Isaac "lifted up his eyes and saw camels coming afar off?"

All these ages of toil and thirst seem to have concentrated their essence in this strange beast; why should he be anything but sulky, and stubborn, and impatient? His very food is made up of things that bristle with spikes and thorns. "When I attempted to pat him after he had brought me safely through the desert in July," writes the officer already quoted, "he turned towards me with a savage growl. He had done his work, he needed no thanks."

Another remnant of old world life which the Nile still preserves, but one differing in every respect from the camel, is the crocodile. He is numerous at all the cataracts from Dal upwards, but especially on the sand banks in the Shagghiea country; but because he is not now seen in reaches of the river below the second cataract, it is not to be supposed that he has altogether abandoned these waters. During the hot season of 1885, when I was living in a Dahabiha at Wady Halfa, a rumor went about among the natives that there was a very large crocodile in the river at that place. My boat had been there for months, and as the water shrunk daily into smaller volume, and there was no appearance of the monster, I thought it was impossible he could be there, but one very hot evening when I was sitting at the stern of the boat, all at once the head of an enormous crocodile was thrust above the surface a few yards distant.

During the inundation, and through the winter months, the natives seem to take little heed of the presence of the reptile; but in the hot season before the river rises, their methods are quite different; you will then see the women at all the villages in Dar

Shagghiea throwing stones and lumps of dry mud into the water to drive away the crocodiles from the proximity of the bank while their companions are filling their pitchers in the shallow margins.

The natives assert that the crocodile swallows large quantities of round stones at one season of the year for the purpose of keeping himself on the bottom of the river; certain is it that there is a period of the year when he seldom shows above the surface, and I can myself vouch for the fact that the stomach of a large crocodile, killed at Merawe in 1885, was found to contain a bushelful or more of round stones, many of them as large as eggs, quite smooth and polished.

Of fishes, the river possesses a vast number and variety, some of great size. The largest are only occasionally taken when the river is falling rapidly. Sometimes at this period a monster fish will find himself caught in shallow water, or held inside a ledge of rocks which prevents his getting into the deeper river. At Abu Fatmeh, in November, 1884, my crew of West African Krooboys secured a very large specimen of the Samous, a Nile salmon, among some rocks where they were bathing; the fish weighed 115 pounds, and was as perfect in shape as the best salmon could be; he was disabled in the shallow water by repeated blows of an axe.

Everybody knows that Khartoum stands at the point of junction of the Blue and White Niles. It was founded and made the seat of government and the center of trade by MEHEMET ALI.

Its government was Turkish, its trade was in slaves and ivory, two ivories in fact, for one was the complement of the other, and the "black ivory," as slaves were named, was the transport used to carry to the Nile shore, from the forest swamps of the interior, the ivory of commerce which the wild elephant supplied.

But there are questions which lie outside the limits of this paper, and were I even to follow the great river along those lower shores we have been traveling, into the ramifications of its upper water, and the races of men who dwell upon them, your patience would scarcely go with me on the journey, besides, it is possible that in dealing with the relations between the governing powers in the east and their subjects, we might enter into ground forbidden to the Aldershot Military Society.

Whenever I hear or read the numerous declarations of those persons in western lands who are desirous of improving and benefiting the condition of the Mahommedan peoples of the east, I am reminded of a story of a traveler on the Nile, who, in his attempts one day to shoot a quail, had the misfortune to lodge a portion of the charge of the shot in the body of a native who was reposing on the shores. Horrified at the accident, and desirous of making compensation to the native for the injury he had received, the sportsman wrote immediately to the Mudir at the nearest government post reporting the occurrence, and begging that action might be taken in the matter. On his return journey down stream the traveler called upon the Mudir to inquire how far his wishes to ameliorate the

condition of the wounded man had been carried into effect. He was assured that everything had been done, that his wishes had received the fullest attention.

"And how much did your Excellency give the wounded man?" asked the traveler, desirous of reimbursing the governor for the expenditure incurred.

"Fifty strokes of the kourbash," solemnly replied the Mudir, "and he will receive another fifty to-morrow, Bismillah. I do not think he will ever be wicked enough to get in the way of your Sublimity's gun again."—*Major-General Sir William Butler, K. C. B., in Aldershot Military Society.*

BOOK NOTICES AND EXCHANGES.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION. June–July–August, 1897.

1. Italian Second-Class Cruiser Stromboli. 2. The Dongola Expedition of 1896. 3. The Professional Study of Military History. 4. The Madagascar Expedition of 1895-6. 5. A Scheme for the Better Organization of the British Infantry. 6. Naval Notes. 7. Military Notes. 8. Naval and Military Calendar for May. 9. Contents of Foreign Journals for May. 10. Notices of Books. 11. The United States First-Class Armoured Cruiser Brooklyn. 12. The Education and Training of Naval and Military Cadets. 13. The Proposed Naval College at Dartmouth. 14. Two Operations in Woods, 1866, 1870. 15. The Battle of Naseby. 16. Naval Notes. 17. Military Notes. 18. Naval and Military Calendar for June. 19. Contents of Foreign Journals for June. 20. Book Notices. 21. Colonel Sir Augustus S. Frazer, K. C. B., F. R. S. 22. Military Essay for the Gold Medal Competition. 23. Army Signalling and Its Use in War. 24. A Royal Marine Reserve. 25. Naval Notes. 26. Military Notes. 27. Naval and Military Calendar for July. 28. Contents of Foreign Journals for July. 29. Notices of Books.

PROCEEDINGS OF THE ROYAL ARTILLERY INSTITUTION. July–August, 1897.

1. Abstract of the Proceedings of the Sixteenth Annual General Meeting of the Royal Artillery Institution. 2. Coast Artillery Practice: How Best to Conduct it with Regards to the Requirements of Actual Warfare. Gold Medal Prize Essay, 1897. 3. Commended Essay, (same subject). 4. Commended Essay, (same subject). 5. The Choice, Occupation and Change of Position by Field Artillery. 6. The German Method of Bringing Guns into Action. 7. The Study of Military History as a Means of Training for War. 8. Accident to 12-inch B. L. Gun on Board the Russian Battleship Sisoi Veliki. 9. Competitive Practice in the Garrison Artillery and its Effect on the Training of Officers and Men. 10. Notes on Training Artillery Scouts. 11. Consular Experiences in Turkey.

JOURNAL OF THE UNITED STATES ARTILLERY. July–August, 1897.

1. Development of a Photo-Velocimeter. 2. The Synchronograph. 3. History of the Sea Coast Fortifications of the United States. 4. The Bicycle and its Adaptability to Military Purposes. 5. Professional Notes. 6. Book Reviews. 7. Index to Current Artillery Literature. 8. Letters on Sea Coast Artillery. 9. Notes on Armor. 10. A New Method of Indirect Laying for Field Artillery. 11. Professional Notes. 12. Book Notices. 13. Department of Scientific and Military Information.

PROCEEDINGS OF THE UNITED STATES NAVAL INSTITUTE. No. 2, 1897.

1. A Proposed Uniform Course of Instruction for the Naval Militia. 2. The Composition and Arrangement of Ships' Batteries. 3. Notes on the Yacht "Defender" and the Use of Aluminum in Marine Construction. 4. On the Perforation of Face-Hardened Armor. 5. Military Training. 6. Replies to Criticisms of Essay on Torpedo Boat Policy. 7. Professional Notes. 8. Book Notices and Reviews. 9. Bibliographic Notes. 10. Officers of the Institute. 11. Special Notice.

THE PENNSYLVANIA MAGAZINE OF HISTORY AND BIOGRAPHY. July, 1897.

1. The Family of William Penn. 2. The Journal and Papers of the Continental Congress. 3. Washington After the Revolution. 4. The Religious Condition of Pennsylvania in the Year 1701. 5. The So-called Franklin Prayer Book. 6. Extracts From the Letter Book of Lieutenant Enos Reeves. 7. The French Fete in Philadelphia in Honor of the Dauphin's Birthday, 1782. 8. Notes and Queries. 9. Book Notices.

THE MAINE BUGLE. July, 1897.

1. A Private's Tribute to Gen. Geo. L. Beal. 2. In Memoriam. 3. Ancestry and Biography. 4. Echoes. 5. Thirteenth Tennessee Confederate Infantry. 6. Fort Fisher. 7. G. A. R. Encampment, Maine. 8. Five Brothers in Blue. 9. Fourth Maine Battery. 10. Ames Family Record. 11. Captain Albert Warren Stiles. 12. Captain Clifton W. Miles. 13. The Twenty-First Pennsylvania Cavalry. 14. Rockland Institute, Nyock-on-Hudson, New York.

JOURNAL OF THE MILITARY SERVICE INSTITUTION. July, 1897.

1. A Well Organized Infantry. 2. A Strategical Study. 3. Infantry and Light Artillery. 4. National Guard. 5. A System of Artillery Fire Control. 6. Preparation of Volunteers. 7. Reprints and Translations. 8. Military Notes. 9. Comment and Criticism. 10. Reviews and Exchanges. 11. List of Officers, Prize Essays. 12. Publishers' Department.

THE INDIAN FENCING REVIEW. April, 1897.

1. The Indian Fencing Association. 2. The Infantry Sword Exercise of 1895. 3. The Saber. 4. Foreign Systems of Military Fence. 5. Foil Fencing. 6. A Hitherto Undiscovered Chapter of the Memorable Thoughts of Socrates. 7. Cuts and Points. 8. Rules of the Indian Fencing Association. 9. Calcutta Central School.

ALDERSHOT MILITARY SOCIETY. May, 1897.

1. Niger Sudan Campaign, 1897. 2. The Nile Cataracts.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA.

THE CANADIAN MILITARY INSTITUTE.

REVUE DU CERCLE MILITAIRE.

IOWA HISTORICAL RECORD.

MILITAER WOCHENBLATT.

THE BREEDERS' GAZETTE.

THE RIDER AND DRIVER.

THE MILITARY GAZETTE.

REVUE DE CAVALERIE.

OUR DUMB ANIMALS.

THE EXECUTIVE COUNCIL.

A special meeting of the Executive Council of the Cavalry Association was held on Thursday, September 23d, at 12 M., for the purpose of electing a resident Vice-President of the Association, that office having become vacant by reason of the change of station of Lieutenant-Colonel A. R. CHAFFEE to Fort Riley, Kansas. Major J. A. AUGUR, Fourth Cavalry, was unanimously elected to the vacancy for the unexpired term.

E. L. PHILLIPS,
Second Lieutenant, Sixth Cavalry,
Secretary.

THE UNITED STATES CAVALRY.

FIRST CAVALRY—COLONEL ABRAHAM K. ARNOLD.
Adjutant, W. S. SCOTT. Quartermaster, G. H. MACDONALD.
HEADQUARTERS, FORT RILEY, KANSAS.
Troops—*F* and *K*, Fort Riley, Kan.; *A* and *I*, Fort Huachuca, Ariz.; *E* and *H*, Fort Still, O. T.; *B* and *D*, Fort Reno, O. T.; *C* and *G*, Fort Sheridan, Ill.

SECOND CAVALRY—COLONEL GEORGE G. HUNTT.
Adjutant, R. E. L. MICHIE. Quartermaster, H. H. SARGENT.
HEADQUARTERS, FORT WINGATE, N. M.
Troops—*E* and *K*, Fort Wingate, N. M.; *A*, *C*, *D*, *F*, *G* and *H*, Fort Riley, Kan.; *B* and *I*, Fort Logan, Colo.

THIRD CAVALRY—COLONEL S. B. M. YOUNG.
Adjutant, T. R. RIVERS. Quartermaster, J. W. HEARD.
HEADQUARTERS, FORT ETHAN ALLEN, VT.
Troops—*A*, *B*, *D*, *H*, *I* and *K*, Jefferson Barracks, Mo.; *C*, *E*, *F* and *G*, Fort Ethan Allen, Vt.

FOURTH CAVALRY—COLONEL CHARLES E. COMPTON.
Adjutant, C. STEWART. Quartermaster G. H. CAMERON.
HEADQUARTERS, FORT WALLA WALLA, WASH.
Troops—*A* and *G*, Fort Walla Walla, Wash.; *E*, Vancouver Barracks, Wash.; *F*, Boise Barracks, Idaho; *B*, *C*, *I* and *K*, Presidio of San Francisco, Cal.; *D* and *H*, Fort Yellowstone, Wyo.

FIFTH CAVALRY—COLONEL L. H. CARPENTER.
Adjutant, J. M. JENKINS. Quartermaster, J. T. HAINES.
HEADQUARTERS, FORT SAM HOUSTON, TEXAS.
Troops—*D*, *E*, *F* and *K*, Fort Sam Houston, Tex.; *B*, Fort McIntosh, Tex.; *C* and *I*, Fort Clark, Tex.; *G*, Fort Brown, Tex.; *H*, Fort Ringgold, Tex.; *A*, Fort Bliss, Tex.

SIXTH CAVALRY—COLONEL SAMUEL S. SUMNER.
Adjutant, R. L. HOWZE. Quartermaster, G. H. SANDS.
HEADQUARTERS, FORT MYER, VA.
Troops—*A*, *E*, *G* and *H*, Fort Myer, Va.; *B*, *C*, *F* and *K*, Fort Leavenworth, Kan.; *D* and *I*, Fort Robinson, Neb.

SEVENTH CAVALRY—COLONEL EDWIN V. SUMNER.
Adjutant, W. A. HOLBROOK. Quartermaster, W. H. HART.
HEADQUARTERS, FORT GRANT, ARIZONA.
Troops—*B*, *C*, *E* and *F*, Fort Grant, Ariz.; *I* and *K*, Fort Huachuca, Ariz.; *L*, Fort Sill, O. T.; *A* and *D*, Fort Bayard, N. M.; *G* and *H*, Fort Apache, Ariz.

EIGHTH CAVALRY—COLONEL J. M. BACON.
Adjutant, M. F. STEELE. Quartermaster, C. C. WALCUTT.
HEADQUARTERS, FORT MEADE, S. D.
Troops—*B*, *D*, *E*, *F*, *G*, *H*, *I* and *K*, Fort Meade, S. D.; *A*, Fort Keogh, Mont.; *C*, Fort Yates, N. D.

NINTH CAVALRY—COLONEL DAVID PERRY.
Adjutant, G. H. PRESTON. Quartermaster, J. H. GARDNER.
HEADQUARTERS, FORT ROBINSON, NEB.
Troops—*A*, *C*, *E*, *G*, *H* and *K*, Fort Robinson, Neb.; *B* and *F*, Fort Du Chesne, Utah; *D* and *I*, Fort Washakie, Wyo.

TENTH CAVALRY—COLONEL GUY V. HENRY.
Adjutant, M. H. BARNUM. Quartermaster, L. HARDEMAN.
HEADQUARTERS, FORT ASSINNIBOINE, MONT.
Troops—*C*, *D*, *F*, *G*, *H* and *I*, Fort Assinniboine, Mont.; *A*, *B*, *E* and *K*, Fort Custer, Mont.

The Adjutants of Regiments will please notify the Editor of changes in the Regimental Staff, and in stations of Troops.

CAVALRY OF THE NATIONAL GUARD.

NOTE.—The following have no mounted troops: Delaware, District of Columbia, Florida, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, North Carolina, South Dakota, West Virginia, Vermont, Wyoming. Other States and Territories not mentioned below, have not been reported.

ALABAMA.

FIRST CAVALRY SQUADRON—MAJOR JAMES T. BECK.

Adjutant, Captain A. G. Forbes. Quartermaster, Captain J. F. Burns.

HEADQUARTERS, CAMDEN.

Troop "A," Montgomery, Captain W. F. Joseph; Troop "B," Camden, Captain W. P. Burford; Troop "C," Selma, Captain V. P. Atkins; Troop "D," Birmingham, Captain J. B Morson.

ARKANSAS.

Troop "A," Panola, Major M. C. House; Troop "B," Jacksonville, (Commanding Officer unknown).

CALIFORNIA.

Troop "A," San Francisco, Captain Chas. A. Jenks; Troop "B," Sacramento, Captain John Cooke; Troop "C," Salinas, Captain Michael J. Burke; Troop "D," Los Angeles, (Commanding Officer unknown.)

COLORADO.

FIRST SQUADRON OF CAVALRY—MAJOR JOHN CHASE.

Adjutant, First Lieutenant A. H. Williams. Quartermaster, (None.)

HEADQUARTERS, DENVER.

Troop "A," Leadville, Captain Frank M. Goddard; Troop "B," Denver, First Lieutenant Wm. G. Wheeler.

GEORGIA.

FIRST REGIMENT OF CAVALRY—COLONEL WILLIAM W. GORDON.

Adjutant, Captain Wm. G. Harrison. Quartermaster, Captain Albert S. Eichberg.

HEADQUARTERS, SAVANNAH.

FIRST SQUADRON, FIRST REGIMENT—MAJOR PETER W. MELDRIM.

HEADQUARTERS, SAVANNAH.

Troop "B," McIntosh, Captain Willard P. Waite; Troop "E," Johnston Station, Captain Joseph W. Hughes; Troop "G," Darien, Captain Benjamin T. Sinclair; Troop "I," Jesup, Captain Harry W. Whaley.

SECOND SQUADRON, FIRST REGIMENT—MAJOR JAMES J. BREWER.

HEADQUARTERS, OLIVER.

Troop "A," Savannah, Captain Beirne Gordon: Troop "C," Springfield, Captain Daniel G. Morgan; Troop "D," Sylvania, Captain Jesse T. Wade; Troop "H," Waynesboro, Captain William H. Davis.

FIRST BATTALION OF CAVALRY (INDEPENDENT)—MAJOR JOHN M. BARNARD.

Adjutant, First Lieutenant John D. Twiggs. Quartermaster, First Lieutenant Robert Dohme.

HEADQUARTERS, LAGRANGE.

Troop "A," Augusta, Captain Albert J. Twiggs; Troop "B," Atlanta, Captain J. Stapler Dozier; Troop "C," LaGrange, Captain Thomas J. Thornton; Troop "D," Hamilton, First Lieutenant John M. Bruce.

ILLINOIS.

CAVALRY SQUADRON—MAJOR EDWARD C. YOUNG.

Adjutant, Captain Pierrepont Isham. Quartermaster, First Lieutenant Milton J. Foreman.

HEADQUARTERS, CHICAGO.

Troop "A," Chicago, Captain Paul B. Lino; Troop "B," Bloomington, Captain Will P. Butler; Troop "C," Chicago, Captain Metullus L. C. Funkhouser; Troop "D," Springfield, Captain John S. Hurt.

MASSACHUSETTS.

FIRST BATTALION OF CAVALRY—MAJOR HORACE G. KEMP.

Adjutant, First Lieut. Walter C. Wardwell. Quartermaster, First Lieut. Sullivan B. Newton.

HEADQUARTERS, BOSTON.

Troop "A," Boston, Captain D. A. Young; Troop "D," Boston, Captain William A. Perrins; Troop "F," (Independent), North Chelmsford, Captain Elisha H. Shaw.

MISSISSIPPI.

FIRST SQUADRON OF CAVALRY—MAJOR J. H. COOKE.

Adjutant, First Lieutenant B. B. Hardy. Quartermaster, First Lieutenant D. W. Outlaw.

HEADQUARTERS, ARTESIA.

Troop "A," Crawford, Captain J. J. Prowell; Troop "B," Sessumsville, Captain A. F. Young.

MONTANA.

Troop "A," Billings, Captain J. C. Bond; Troop "B," Bozeman, Captain J. F. Keown.

NEBRASKA.

Troop "A," Milford, Captain Jacob H. Culver.

NEW HAMPSHIRE.

Troop "A," Peterborough, Captain Charles B. Davis.

NEW JERSEY.

First Troop, Newark, Captain Frederick Frelinghuysen; Second Troop, Red Bank, Captain John V. Allstrom.

NEW MEXICO.

FIRST BATTALION OF CAVALRY—MAJOR T. P. GABLE.

Adjutant, First Lieutenant W. E. Griffin. Quartermaster, First Lieutenant E. B. Linnen.

HEADQUARTERS, SANTA FE.

NOTE.—The battalion is now undergoing reorganization. It is to contain four troops.

NEW YORK.

SQUADRON "A"—MAJOR CHARLES F. ROE.

Adjutant, First Lieut. John Isaac Holly. Quartermaster, First Lieut. Louis V. O'Donohue.

HEADQUARTERS, NEW YORK CITY.

First Troop, New York City, Captain Oliver B. Bridgman; Second Troop, New York City, Captain Howard G. Badgley; Third Troop, New York City, Captain Latham G. Reed; Troop "C," (Independent), Brooklyn, Captain Bertram T. Clayton.

OHIO.

Troop "A," Cleveland, Captain Russell E. Burdick.

OREGON.

Troop "B," Gresham, Captain Charles Cleveland.

NOTE.—Another troop, to be called Troop "A," will soon be organized, and a squadron organization will be completed.

PENNSYLVANIA.

Philadelphia City Troop, Philadelphia, Captain John C. Groome; Governor's Troop, Harrisburg, Captain Frederick M. Ott; Sheridan Troop, Tyrone, Captain C. S. W. Jones.

RHODE ISLAND.

FIRST SQUADRON OF CAVALRY—MAJOR ALEXANDER STRAUSS.

Adjutant, First Lieutenant Thomas Child. Quartermaster, First Lieutenant Miles H. Ray.

HEADQUARTERS, PAWTUCKET.

Troop "A," Pawtucket, Captain Edward T. Jones; Troop "B," Providence, Captain Wm. A. Maynard.

TENNESSEE.

Cavalry Troop, Nashville, Captain George F. Hagar.

TEXAS

FIRST CAVALRY REGIMENT—COLONEL J. R. WATIES.

Adjutant, First Lieut. James M. Burroughs. Quartermaster, First Lieut. Frederick Rhodes.

HEADQUARTERS, HOUSTON.

Troop "A," Austin, Captain L. H. Younger; Troop "B," Houston, Captain C. Towles; Troop "E," Dallas, Captain F. V. Blythe; Troop "F," Denison, Captain E. A. Hammond; Troop "H," Gainesville, Captain John A. Hulen.

VIRGINIA.

Troop "A," Richmond, Captain E. J. Euker; Troop "B," Surry, Captain Geo. A. Savedge.

WASHINGTON.

Troop "A," North Yakima, Captain Marshall S. Scudder; Troop "B," Tacoma, Captain Everett G. Griggs.

WISCONSIN.

Troop "A," Milwaukee, Captain William J. Grant.

GENERAL RANALD SLIDELL MACKENZIE.